Incremental Power:
The Nexus between Information Technologies and Community Development

By

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Submitted to the Department of Urban Studies and Planning in partial fulfillment of the requirements for the degree of
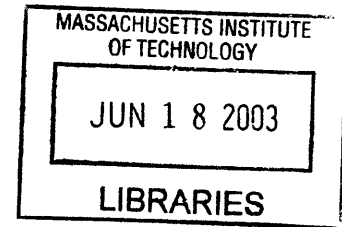
Master in City Planning

At the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 2003

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ABSTRACT

In today's postindustrial society, considering connections between power, knowledge, and information is fundamental to promoting democracy and equity. This thesis examines current and potential uses of information technologies in community development work. It argues that while these technologies are vital to developing and implementing sound policy, they are also valuable tools for fostering greater community dialogue, encouraging broad collaboration, and building community capacity to effect sustained positive change. Research is specifically designed to inform a nascent university-community partnership between the Department of Urban Studies and Planning at the Massachusetts Institute of Technology in Cambridge, Massachusetts and Lawrence CommunityWorks, Inc., a community development corporation in Lawrence, Massachusetts. The goal of this multiyear partnership is to design, implement, and evaluate a neighborhood information system (NIS) as a strategy for empowering residents and supporting community development efforts in Lawrence.

The approach of the thesis is to provide a theoretical and practical framework for this investigation. Technological advances, the devolution of social policy down to local agencies, and comprehensive community building efforts underscore the importance of information technologies in planning, organizing, and advocating

for neighborhood change. Furthermore, the ability of citizens to access and use data and technology is fundamental to community empowerment.

Quantitative and qualitative research methods are used to evaluate existing NIS and to document and inform the work in Lawrence. Findings suggest that while traditional NIS systems add value to public policy by providing access to reliable data, these systems fall short of building information literacy and technological fluency within neighborhoods. Citizen involvement, information and technology training, cross-cutting collaborations, and public agency partners are critical for successful and sustainable community-based technology projects.

Recommendations for the Lawrence partnership emphasize the use of information technologies to support a *network* of formal and informal capacity building of residents, community leaders, community-based organizations, and institutions. Furthermore, given the widespread interest in the using information technologies to empower citizens, additional research into metrics and indicators of community capacity and community power is needed.

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ACKNOWLEDGMENTS

This thesis is the culmination of over a year of engaging and thinking about the power of technology and information in community development efforts. While my curiosity about this issue stems from a personal and professional interest in community development and organizing, this thesis has been specifically inspired by the powerful and amazing work in Lawrence, Massachusetts. I would like to thank the entire staff of Lawrence CommunityWorks, Inc. and Groundwork Lawrence for their encouragement, support, and passion.

More specifically, I would like to express gratitude to my Advisor, Lorlene Hoyt, who, along with Kristen Harol, convinced me that Lawrence and not Seattle should be the context for this thesis. Lorlene's insight, feedback, support, and rigor have been invaluable; I could not have asked for a better advisor. Also I would like to thank Ceasar McDowell, who offered important direction and advice, and encouraged me to use my voice. Kristen Harol deserves thanks on so many levels. Her involvement in my graduate school experience and this thesis has been more than meaningful. In obvious and subtle ways she has been an important mentor to me.

I would also like to thank my parents, who have provided constant support since the day I was born. My sister Suzanne, and Christine and Liz – thank you for your interest in my work, for being there, and for listening. Des, Julie, and Maggie – so much of what I have learned *with* you is reflected in this thesis! Last, but far from least, I want to recognize my husband Mike. You deserve endless thanks for unconditional encouragement, understanding, and support. Your contributions to this thesis have been indispensable and your caretaking over the last two years will always be remembered. You're the best!

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INTRODUCTION

In today's knowledge-driven economy, the fundamental factor of production and consumption is information. Technological advances are dramatically expanding the ability to acquire, manage, and supply data. General optimism on the impact of information technologies on society has infiltrated almost every discipline.[1] At the same time, the ability to access and use information has become the critical fault line between the haves and the have-nots. The same market imperfections that existed in the industrial economy continue to plague the new economy. In today's postindustrial society, the connection between power, knowledge and information is fundamental to any effort to promote democracy and equity.

In this thesis, I will examine the relationship between information technologies and community development, a field that is increasingly adopting comprehensive approaches to revitalizing communities. Effective community development must simultaneously address complex and interconnected issues such as housing, education, economic development, literacy, and skills.[2] However, "the need to simultaneously address people and place remains one of the most daunting challenges in community development."[3]

I will argue that the use of information technologies is vital to community development efforts. The ability to access, acquire, analyze, and communicate

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[1] Bill Pitkin, "A Historical Perspective of Technology and Planning," *Berkeley Planning Journal* 15, (2001), 32. http://dcrp.ced.berkeley.edu/bpj/pdf/15-Pitkin.pdf

[2] Norman Glickman and Lisa Servon, "More Than Just Bricks and Sticks," Working paper no. 132 (Center for Urban Policy Research, Rutgers State University of New Jersey, 1997).

[3] PolicyLink, *Bridging the Organizational Divide: Toward a Comprehensive Approach to the Digital Divide* (Oakland, New York: PolicyLink, 2001), 15.

Information Literacy

The ability to recognize when information is needed and have the skills to locate, evaluate, and use information effectively.

Technological Fluency

The ability to understand the underlying concepts of technology and apply problem-solving and critical thinking to its use.

Association of College and Research Libraries, Information Literacy Competency Standards for Higher Education, 2000, http://www.ala.org

complex datasets in meaningful ways is critical to developing effective and comprehensive approaches to addressing interrelated issues. Furthermore, while there have been strides in closing the digital divide with respect to access, ***information literacy*** and ***technological fluency*** remain serious challenges. These two skills are paramount to fully participating in today's world of rapid technological change and proliferating information resources.

This investigation stems from coursework at the Massachusetts Institute of Technology (MIT) and work with Lawrence CommunityWorks, Inc. (LCW), a community development corporation (CDC) located in Lawrence, Massachusetts. The research, analysis, and findings are designed specifically to inform a nascent partnership between MIT and LCW to use information technology to support community development in Lawrence. Therefore, while findings may be generalized to similar efforts, the particular frame through which this work evolved is specific to the characteristics, institutions, and individuals associated with these efforts in Lawrence.

GENERAL APPROACH

The approach of this thesis is to provide a theoretical and practical context for examining the use of information technologies in community development work. Chapter 1 summarizes changes in the use of information and technology over the last several decades and sketches the evolution of community development strategies in the United States. The goal of this chapter is to underscore both the opportunity and necessity for community development practitioners and researchers to incorporate information technologies in community development activities.

Chapter 2 provides a context for this thesis, which includes a discussion of the City of Lawrence, LCW, and the evolving partnership between MIT and LCW. Chapter 3 presents my specific research methodology for informing the Lawrence work in two particular ways: 1) to document initial goals and objectives of key stakeholders involved in the Lawrence partnership, and 2) to evaluate existing efforts to use information technologies in local communities through the establishment of Neighborhood Information Systems (NIS). These web-based applications are being developed in a number of cities with the intent to empower local communities and support neighborhood improvements.

Chapter 4 describes findings to the research outlined above, including the goals and visions for the Lawrence work (hereafter referred to as the Lawrence Project), and the uses of web-based NIS for community development and empowerment. Chapter 5 offers general lessons for using information technologies to empower communities, along with a specific framework for advancing the work in Lawrence.

CHAPTER 1: COMMUNITY DEVELOPMENT, INFORMATION & POWER

Social, political, and economic inequities are found in most metropolitan regions today. The most challenging urban problems tend to cluster in particular neighborhoods and around particular populations. The transformation from an industrial-based economy to an information-based economy has left certain neighborhoods and cities with a challenging set of interrelated issues such as joblessness, failing schools, inadequate housing, and environmental degradation. These are all products of "economic restructuring, industrial relocations, racial and class segregation, and policies that have led to these trends."[4] As Foucault describes to the right, information, knowledge, and power are fundamental to addressing the urban issues of today.

Over the last several decades, there have been a number of noteworthy evolutions in social policy, advances in technology, and changes in community development approaches that present both the opportunity and necessity for using information technologies to improve neighborhoods. This chapter will discuss these changes and their impact on community development efforts.

Data & Social Policy

The use of data in planning and policymaking is not new. In the mid-nineteenth century, reformers in Europe and the United States began using data to monitor

We live in a social universe in which the formation, circulation, and utilization of knowledge presents a fundamental problem. If the accumulation of capital has been an essential feature of our society, the accumulation of knowledge has not been any less so. Now, the exercise, production, and accumulation of this knowledge cannot be dissociated from the mechanisms of power; complex relations exist which must be analysed.

Michel Foucault, *Remarks on Marx: Conversations with Duccio Trombadori*, (New York: Semiotext(e), 1991), 165.

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[4] Alice O'Connor, "Swimming against the Tide: A Brief History of Federal Policy in Poor Communities," in *Urban Problems and Community Development*, ed. Ronald Ferguson and William Dickens (Washington, DC: Brookings Institution, 1999), 79.

and improve public health and social conditions.[5]   In 1933, The Hoover Administration's Commission on Social Trends in the United States was the first attempt by the federal government to move beyond labor and economic indicators and systematically collect data to report on social trends. Indicator efforts flourished in the 1960s and 1970s, with new vigor and methodologies to measure a variety of social conditions.[6] In 1960, the President's Commission on National Goals submitted their report, *Goals for Americans,* to President Eisenhower. Researched and written with private funds, this report provided an overview of the status of Americans as they entered the 1960s and possibilities for solving problems of inequities in wealth and government services. It called for more organized government efforts to track indicators to better plan and respond to social developments in the United States.[7] As the field developed, so did the pool of data and information. Community health and quality of life indicators were added to existing datasets, which were at the time primarily focused on the provision of social services. Researchers also began to link indicators of environmental quality and sustainability.

Concurrent with this intensity around data and information, the federal government began pursuing a strategy to devolve the responsibility of social policy to state and local governments in the form of block grants and revenue sharing.[8] While greater local control has fostered locally-informed policies and

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[5] Raymond A. Bauer, ed., *Social Indicators* (Cambridge, MA, London: The MIT Press, 1996).

[6] Stephan Gasteyer and Cornelia Butler Flora, *Social Indicators: An Annotated Bibliography on Trends, Sources and Development, 1960-1998* (1999), Introduction.
http://www.ag.iastate.edu/centers/rdev/indicators/introduction.html

[7] *Ibid.*

[8] Bill Pitkin, "The Politics of Neighborhood Planning and Collective Action" working paper for UCLA Advanced Policy Institute (November 2001), 1.
http://api.sppsr.ucla.edu/pdf/politics_of_neighborhood_planning.pdf.

supported the rise of community-based organizations, many scholars believe that local governments are more effective at promoting growth and economic development than addressing issues of equity and redistribution.[9] Urban sociologists John Logan and Harvey Molotch argue that local governments tend to be dominated by the business elite or what they term as local *growth machines*, which pursue economic development programs at the expense of those most in need.[10] Therefore, as anti-poverty programs are delegated to state and local authorities, some policy experts fear the most disenfranchised will continue to be passed over. The growing importance of data and local politics with respect to social policy indicates a need for community leaders and citizens to have access to reliable data about their neighborhoods and the skills and tools to effectively communicate local need and intervention strategies.

The Evolution of Information Technologies

A number of significant technological advances over the last several decades are enabling community residents, civic leaders, and community organizations to collect and analyze data at the neighborhood level for community development efforts.

Hardware, Software & the Freedom of Information Act (FOIA)

Over the last quarter century there has been a steady flow of new and more advanced microcomputing and communications technologies. Tasks that previously required inflexible and expensive mainframe computers can now be

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[9] Paul Peterson, *The Price of Federalism* (Washington, DC: Brookings Institution, 1995).

[10] John Logan and Harvey Molotch, *Urban Fortunes: The Political Economy of Place* (Berkeley, Los Angeles, London: University of California Press, 1997).

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performed on decentralized computer networks.[11] Mandates from the federal government to monitor and report on federally-funded programs, along with federal requirements to make data available to citizens under the Freedom of Information Act of 1966 and its subsequent amendments,[12] are supporting citizen efforts to obtain reliable and accurate data about their communities. Moreover, as hardware and software advances improve the collection and analysis of data, a number of agencies now provide web-based public information online through what is commonly referred to as *e-government*. Following the lead of the federal government's Firstgov.gov initiative,[13] thousands of local municipalities are making data, services, and business available through websites and kiosks.[14]

The World Wide Web (Web)

Probably the most revolutionary information technology, the Web enables the efficient transmission of large volumes of data in various forms (text, charts, tables, maps, graphs, audio or video) almost instantaneously and offers new opportunities for connectivity. Based on the US Census Bureau's *Current Population Survey* in September, 2001, there has been a substantial rise in Internet usage – regardless of race, ethnicity, income, education, age or gender – at school, home, and work. In fact, over the last two years, individuals in low-

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[11] Thomas Kingsley, *Neighborhood Indicators: Taking Advantage of the New Potential* (The Urban Institute-National Neighborhood Indicators Project, October, 1998), 2-3.
http://www.urban.org/nnip/pdf/kingsle1.pdf

[12] http://www.cni.org/docs/infopols/US.Freedom.Info.Act.html

[13] Firstgov.gov

[14] Seedco, *The Evolving Role of Information Technology in Community Development Organizations* (New York: Seedco, March 2002).

income households have shown higher rates of increase, along with Blacks and Hispanics.[15]

In addition to growing usage, the Web has contributed to the restructuring of the conventional hierarchical relationship between suppliers and consumers of data, where data consumers can just as easily become data suppliers.[16] The use of hyperlinks and hypertext enable thousands of websites to seamlessly link with one another across a neighborhood, city, state, region, or even the world. The result is a clustering of websites and a greater breath and depth of web-based information. In addition to breaking down the traditional roles of data consumers and data producers, new web-based applications enable data producers to engage citizens in a dynamic and interactive manner.[17] It is now possible for users to query large datasets online, offer suggestions and recommendations, or contribute personal knowledge. These types of interactions between users and suppliers can dramatically improve data integrity and data quality. For example, housing advocates in Milwaukee, Wisconsin are working with the City of Milwaukee to combat housing violations. Housing groups are using online access to real-time data about violations to help enforce housing standards. Field data collected by community-based groups are incorporated into the City's database to provide more accurate information about neighborhood conditions.[18]

InfoResources West Philadelphia Project

Hosts a community website that serves as a clearinghouse for geographic data about the West Philadelphia neighborhood, along with more than fifty external web-based resources on topics such as families, history, community development efforts, and funding opportunities.

http://westphillydata.library.upenn.edu/infoR_mainframe.htm

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[15] US Department of Commerce, NTIA, ESA, *A Nation Online: How Americans Are Expanding Their Use of the Internet* (Washington DC: GPO, 2002), 1.

[16] Yang Liang Chua and Sidney Wong, *Data Intermediation and Beyond: How the Web Modifies the Dissemination of GIS Information* (2002), http://www.urisa.org/PPGIS/2002/papers/SWong.pdf

[17] For example Active Server Page, Common Gateway Interface, and Internet Map Server.

[18] Michael Barndt, "Building Upon Neighborhood Data System Models: Taking the Next Steps" presented at Public Participation GIS Conference (URISA, July 22, 2002).

Geographic Information Systems (GIS), Society & PPGIS

Evolutions in the application and use of GIS have engendered much debate within the GIS community about the role of GIS in today's society. GIS is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information. The advantage of GIS is that it allows for the efficient and flexible storage, display, and exchange of data in several dimensions at once (spatial, temporal, or categorical).[19]

GIS was originally developed to serve the needs of scientists, planners, and other professionals. However, with many of the technological advances described above, the interest in and use of GIS applications has infiltrated many more policymaking arenas. Building on the early scientific models and Early Warning Systems (EWS) created to examine transportation, environmental management, military strategy, and weather patterns, a number of local efforts are using the EWS model to understand socio-economic patterns such as housing abandonment and neighborhood health. These efforts are discussed below.

Early Warning Systems: predicting disinvestment

Over the last decade there have been several efforts to develop predictive models or indicators of neighborhood disinvestment and housing policy. Systems like Chicago NEWS, Neighborhood Knowledge Los Angeles and the Philadelphia Neighborhood Information System provide detailed web-based property data to analyze neighborhood disinvestment.[20] Several of the sites

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[19] US Geological Survey website, http://www.usgs.gov/research/gis/title.html.

[20] Amy Hillier, et al., "Predicting Housing Abandonment with the Philadelphia Neighborhood Information System," *Journal of Urban Affairs* 25, no. 1 (2003): 92.

attempt to predict housing abandonment, under the premise that various property and neighborhood characteristics are directly related. To do this they draw on city administrative datasets, private vendors, and public statistics. However, housing abandonment is a complex and temporal process and it can be difficult to define the indicators, understand their relationships, and weigh their relative predictive power.[21] While these systems have been successful in making historically inaccessible information public, creating data integrity through feedback loops, and generating important data-sharing discussions, on the whole, they remain largely descriptive.[22]

Related to the housing indicator projects, dozens of organizations are applying the idea of EWS to neighborhood health. Since 1996, the Urban Institute's National Neighborhood Indicators Project (NNIP) has been supporting efforts in some 20 cities to build comprehensive and reliable systems of neighborhood-level data. Advances in geocoding[23] have enabled many of these organizations to more easily create and analyze datasets at the neighborhood level.[24] Taken together, these efforts represent a broad array of uses and applications. For example: planning and implementing neighborhood improvements, influencing outsiders (city agencies or funders), focusing on cross-cutting issues to build coalitions, and addressing citywide or larger-area policies affecting the poor.[25] Thomas Kingsley, NNIP Director, describes this phenomenon as *institutional* or

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[21] *Ibid.*

[22] *Ibid*, 103.

[23] Geocoding is the process by which the geographic coordinates (latitude and longitude) of a location are determined based on street address, zip code, or other location information.

[24] Previously, many datasets were only available at the city or regional level.

[25] National Neighborhood Indicators Project (NNIP), *Stories: Using Information in Community Building and Local Policy* (Washington DC: Urban Institute, 1999), Introduction.

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use innovations, where a growing number of organizations and institutions see access to and analysis of neighborhood data as vital to improving neighborhoods and building community capacity.[26] These efforts have required significant partnering with public agencies, foundations, and community-based organizations. Moreover, the central theme with many of these efforts is the idea that indicators should be formulated through a participatory process that engages residents, civic leaders, elected officials, experts, and other key stakeholders. With the initial objective to serve as a data clearinghouse for reliable neighborhood-level data, many of these initiatives are now offering online mapping and GIS tools to enable more widespread access and use of the information.

In addition to making data accessible to the public, several of the NNIP projects have actively pursued efforts to build capacity for using data. The Providence Plan, the Boston Foundation, The Piton Foundation, the Urban Strategies Council, and the Cleveland Area Network on Data and Organizing (CAN DO) have all experimented with various ways to build the skills of community leaders and residents to use data for community change. These efforts have included training stakeholders in the use of specific databases, applying new technologies to data analysis, using data and indicators as part of a comprehensive leadership training, and acquiring specific datasets to advance particular policy objectives. Several of these efforts are highlighted in Chapter 5.

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[26] Thomas Kingsley, "Using Information for Community Change" presented at Next Generation of Community Statistical Systems conference (Shimberg Center for Affordable Housing, March 13, 2002), http://web.dcp.ufl.edu/chakabry/Shimberg_Conference/Wed-KingsleyOK.htm

In the mid-nineties, as the use of GIS technologies was proliferating, members of the National Center for Geographic Information and Analysis (NCGIA) launched Initiative 19, also known as *GIS and Society*. This endeavor is concerned with the social context of the production and use of GIS technologies.[27] At the heart of this debate is the post-positivist thinking that technology shapes society as much as society shapes technology. The initiative has generated a number of research efforts to better understand both the power and the limitations of using GIS technologies in communities for social change. One outcome of these considerations has been the rapidly growing field of Public Participation GIS (PPGIS).

PPGIS

PPGIS represents a new paradigm in the GIS world. Conventional uses of GIS have tended to be top-down and exclusionary. The rational-analytic decision-making process (which will be discussed in greater detail in the next section) has excluded constituents and certain types of knowledge.[28] The PPGIS movement is concerned with the power of GIS to engage and empower citizens in planning and policymaking, and to consider additional forms of data, such as *local knowledge,* along with conventional or "expert" data. Local knowledge is the "mixture of knowledge built up through practical experience and the frames of reference people use to filter and give meaning to that experience."[29] This definition reflects the idea that there are multiple *perceptual frames* in any

**Initiative 19: *GIS and Society*
Conceptual Issues of Interest**

- In what ways have particular logic and visualization techniques, value systems, forms of reasoning, and ways of understanding the world been incorporated into existing GIS techniques, and in what ways have alternative forms of representation been filtered out?

- How has the proliferation and dissemination of databases associated with GIS, as well as differential access, influenced the ability of different social groups to utilize information for their own empowerment?

- How can the knowledge, needs, desires, and hopes of marginalized social groups be adequately represented in GIS-based decision-making processes?

- What possibilities and limitations are associated with using GIS as a participatory tool for more democratic resolution of social and environmental conflicts?

- What ethical and regulatory issues are raised in the context of GIS and Society research and debate?

Initiative 19 Website:
http://www.geo.wvu.edu/i19/description/paper.html

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[27] http://www.geo.wvu.edu/i19/

[28] Emily Talen, "Bottom-Up GIS: A New Tool for Individual and Group Expression in Participatory Planning" *Journal of the American Planning Association* 66, no. 3 (2000): 280.

[29] *Ibid.*

conversation about community needs and opportunities. The life experiences of each individual shape his or her perceptions about community assets, needs, and interventions. These perceptual distinctions can vary vertically – between professionals and community members – and horizontally – along race, ethnicity, gender, and class. One of the significant challenges in community planning efforts is the sharing and exchanging of individual perceptions about the community in the process of building a larger community vision.

GIS visualization

GIS has the potential to support interactivity, engage multiple stakeholders, and communicate multiple perceptions through various media. Users can change the scale of investigation or the way information about an issue is displayed, effecting a more fluid and dynamic process.[30] As supported by a growing body of literature on the cognitive benefits of visualization and spatial orientation, GIS offers endless possibilities for enhancing public participation, visioning and strategic planning, and accountability. Several researchers in the GIS and Society debate have begun explore ways that GIS can support a participatory, bottom-up approach to decision-making and planning. They have incorporated multimedia and other elements to capitalize on the spatial visualization and communication potential of PPGIS. The incorporating of photographs, 3D representations, audio, video, and electronic sketch pads have all been documented to enhance both online planning activities and public meetings.[31] The ability to use visual and other media tools (audio, video, image-based) to

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[30] Ibid, 282.

[31] Michael Shiffer, "Interactive Multimedia Planning Support: Moving from Stand-Alone Systems to the World Wide Web" Environment and Planning B: Planning and Design 22 (1995).

analyze and communicate complex data about particular places is a powerful method for engaging communities in a consensus-building process.

In addition to the visualization and communication benefits, the potential for GIS to correlate local knowledge with "expert" data can greatly enhance the definition of community problems and opportunities. For example, these strategies have been used to plan land reform in a post-apartheid South Africa. Through spatial mental-mapping techniques (linking narrative descriptions, hand-drawn maps, and video to physical locations) researchers overlaid socially differentiated knowledge – along race, gender and class lines – with more traditional scientific data. Two important findings from these efforts shed light on the advantages and challenges of PPGIS. First, combining conventional data with local knowledge greatly enhanced research findings about the opportunities and constraints of land reform. Conventional data failed to identify underutilized lands and politically sensitive issues that were found in the mental-mapping exercise. Second, participant perceptions of temporal and spatial issues varied greatly. Mental-mapping techniques illustrated distinct differences along race and gender lines about the local landscape history, the present situation, and future opportunities.[32]

Critiques of Technology & Expert Data

The idea that technological innovation leads to social progress has its intellectual roots in the Enlightenment thinkers.[33] During the industrial revolution, technology

Portland Metro, Portland, Oregon

Portland Metro, a regional government, is using GIS to develop online tools for informing and soliciting feedback on a range of issues including growth management, earthquake risk assessment, mitigation and response, and floodplain protection. Applications are used and made available at community meetings, on the Internet, and for desktop computer use. Future efforts will involve incorporating nontraditional data such as people values, perception and general qualitative understandings about their communities. They propose creating value-based layers of information, analyzed with traditionally data sources, to provide a more comprehensive understanding about community issues and concerns.

Mark Bosworth and John Donovan, "A Mapmaker's Dream: Public Involvement Applications Utilization of GIS," presented at *Empowerment, Marginalization, and Public Participation GIS* (NCGIA, 1998).

http://www.ncgia.ucsb.edu/varenius/ppgis/papers/bosworth.html

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[32] Daniel Weiner and Trevor Harris "Community Integrated GIS for Land Reform in South Africa" (2002), currently under peer review by the URISA Journal,
http://www.urisa.org/Journal/accepted/2PPGIS/weiner/community_integrated_gis_for_land_reform.htm

[33] Pitkin, November 2001.

quickly became viewed as a necessary and positive force in American society and the economy. The notion that social problems were best analyzed and addressed through rational and objective "professional" means grew tremendously throughout the 20th century. For example, between 1964 and 1975 the "professional and technical" job category grew at twice the average rate, to 132 million. Within this category the growth of natural and social scientists and engineers almost tripled.[34] Planning theorists have described this era of rational planning as a top-down approach to problems through formal physical solutions, with little regard for the subject or object of the planning actions. This politically-neutral and technical approach has elevated expert and professional knowledge above the ideas and opinions of those individuals directly affected by planning actions. Some argue that there was little regard for political and social considerations and that outcome-oriented physical planning has left its mark in the form of urban renewal, suburbanization, and spatial and functional segregation.[35]

Citizen involvement in planning

The 1960s and 1970s brought tremendous backlash against the federally-funded top-down approaches that were dramatically changing the lives of people in neighborhoods all across the country. In the context of social unrest and the devolution of social policy from the federal government to state and local agencies, critiques against the rational-planner model generated new ideas about the role of planners and citizens in policymaking. While a vague concept

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[34] Gaventa, 27.

[35] Susan Fainstein, "New Directions in Planning Theory," Urban Affairs Review 35, no.4 (March 2002).

of community participation in neighborhood revitalization was introduced in the 1954 Housing Act, it became a strict requirement in community development polices of the 1960s.[36] These social and political changes were accompanied by new ideas about the role of professionals and citizens in planning. Emerging theories about equity, advocacy, and consensus planning challenged planners to think differently about their role in the planning process.[37] While the emphasis on design and the physical environment is still prominent in the field of planning (e.g. new urbanism, smart growth), today there is widespread consensus that community residents need to play an active role in neighborhood planning efforts.[38]

Information technologies as a tool – not a silver bullet

While research in the field of PPGIS is illuminating new possibilities for using GIS to support and empower community-based efforts, without explicit attention to access, literacy, participation, and empowerment, information technologies may serve to exacerbate already imbalanced political and social relationships. Many of these issues have been brought to the forefront over the last eight years through research into the gap in access to technology, known as the *digital divide*. These discussions first arose in 1995, when *Newsweek* reported that only 10 percent of the population had access to the Internet. This fact was confirmed that same year by the US Department of Commerce's National

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[36] William Peterman, *Neighborhood Planning and Community-Based Development: The Potential and Limits of Grassroots Action* (Thousand Oaks, CA: SAGE Publications, 2000).

[37] Norman Krumholz, "A Retrospective View of Equity Planning: Cleveland, 1969-1979," *Journal of the American Planning Association* 48, no. 4 (1982); Paul Davidoff, "Advocacy and Pluralism in Planning," *Journal of the American Institute of Planners* 31, no. 4 (1996); Judith Innes, "Information in the Communicative Planning," *Journal of the American Planning Association*, 64, no. 1 (1998).

[38] Pitkin, November, 2001, 1.

Figure 1.1: Digital Divide Interventions

Information Skills
Strategic, analytic skills to translate information into action

Use	Supply
Using IT	Meaningful content

Instrumental Skills
Mechanics of interacting

Physical Access
Hardware, software, Internet
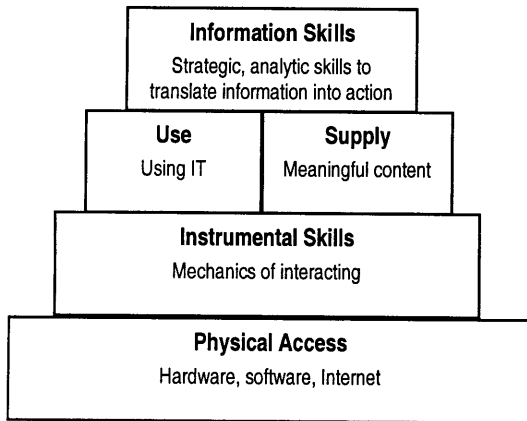
Steyaert, 2003

Telecommunications & Information Administrations (NTIA) telephone survey, which also included several key questions about personal computers and Internet access.[39] Since that time, concerted efforts have been successful at bridging the divide with respect to access, yet challenges still remain within certain demographic groups. It is estimated that nearly 50 percent of US households presently do not have a computer and access to the Internet and these statistics are correlated with gender, age, income, education, employment status and household type.[40] Many in the field of information technologies now believe that access alone cannot address the deeper structural issues of information literacy and technological fluency.[41] Dr. Jan Steyaert of Fontys University in the Netherlands describes seven digital divides along the fault lines of gender, ethnicity, age, income, education, household type and employment status. Dr. Steyaert argues there are four levels of intervention required to successfully bring about digital inclusion (see Figure 1.1). As one ascends the pyramid from access and mechanical skills to information literacy, the challenge is no longer about technology, but society – community, education, and life experiences.   These   higher   interventions   require   comprehensive   and collaborative approaches across many sectors.

Community Development

While the institutions, strategies, and funders have varied over time, the unswerving theme in the story of community development over the last century is

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[39] Dr. Jan Steyaert, "The Digital Divide: From Access to Information Literacy and Risk Behavior" presented at *Technology and the City* (MIT Department of Urban Studies & Planning Colloquium Series, April 18, 2003).

[40] US Department of Commerce, 11-29.

[41] Steyaert, 2003.

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the importance of place. Over the years, the field of community development has evolved from the initial efforts to improve the lives of immigrants in the late 1800s, federal experiments to improve neighborhoods, and more recently, locally-driven interventions. Some of the strategies employed over the years include social reform, organizing and protest, physical and economic development, and comprehensive community building.

Community development today is broadly defined as the "work of community development corporations (CDCs), and community building and comprehensive community initiatives (CCIs), as well as other asset-based development initiatives such as community development financial institutions (CDFIs)."[42] The remainder of this chapter will describe important changes in the field of community development over the years that have led to the recent people-based and comprehensive approaches of today.

Community Development Policy

Today's comprehensive community approaches have emerged from a fairly inconsistent history in community development policy over the last century. Neighborhood-based intervention has its earliest roots in the Progressive Era, in the wake of the Industrial Revolution. Mostly in the form of settlement houses, social reformers set out to ameliorate poverty, overcrowding, and health concerns. The reformers worked to improve the lives of new immigrants through the importance of social ties and assimilation. While limited in their ability to

[42] Ronald F. Ferguson and William T. Dickens, eds. *Urban Problems and Community Development* (Washington, DC: Brookings Institution Press, 1999), Introduction, http://brookings.nap.edu/books/0815718756/html/index.html

advance real structural change in communities, these early settlement efforts helped lay the foundation for subsequent neighborhood planning work.[43]

Following the Progressives, the dominant approach to neighborhood planning up to the 1960s was that of the professional planners and the neighborhood unit. Community development efforts during this era of rational planning relied on physical space and design to improve community and social conditions. As previously discussed, these theories came under heavy fire during the era of social unrest and inner-city decline. In reaction to community protest against the top-down approaches of previous decades, the federal government began to experiment with a number of different strategies for appeasing constituents and investing in urban neighborhoods.

Beginning with the Community Action Program (CAP) in 1964, the Johnson Administrated devised a number of federally-funded initiatives to support thousands of community-based organizations in reviving struggling urban neighborhoods. However, many of these organizations were engaging in protest and confrontational organizing within the context of the Civil Rights Movement, which did not sit well with Mayors and local elites. CAP was soon abandoned for Model Cities and the Special Impact Program (SIP). Model Cities provided federal funds directly to local governments to focus on targeted areas, while SIP provided block grants to CDCs, which were emerging as important development institutions in neighborhoods.[44]

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[43] Pitkin, November 2001, 4-5.
[44] *Ibid*, 8-9.

Under Nixon, the Great Society programs were dismantled as the federal government began its retreat from direct intervention in urban neighborhoods. Nixon created the Community Development Block Grants (CDBG) program, providing local jurisdictions greater authority in allocating federal development funds.[45] The most recent federal inner-city programs, such as the Low Income Housing Tax Credit, Empowerment Zones, Enterprise Communities, and Renewal Communities, rely heavily on tax credits and incentives to spur private interventions in neighborhood revitalization. In addition to a reliance on public-private partnerships and private foundations, most community development organizations today rely heavily on these federal block grants, administered through local governments.

However, as the federal government has retreated from community revitalization activities, community development organizations have flourished. The number of CDCs working nationwide more than doubled between 1970 and 1990.[46] During this time, many CDCs began to specialize in housing and economic development work, engaging more heavily in the technical and professional aspects of community development. This rising professionalism has been further supported by financial and technical intermediaries like the Local Initiatives Support Corporation (LISC) and the Enterprise Foundation.[47] The evolution from activist organization to professional organization has stirred some debate about CDC involvement in community organizing and empowerment activities. This discussion mirrors earlier debates around top-down and bottom-up planning and

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[45] *Ibid.*

[46] Sara E. Stoutland "Community Development Corporations: Mission, Strategy and Accomplishments" in *Urban Problems and Community Development*, 1999, 197-198.

[47] *Ibid*, Stoutland, 1999, 199.

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implementation. Peterman believes CDCs represent a "conservative market-driven approach to neighborhood development" and Stoecker argues that given their local development interests, CDCs should leave organizing and empowerment activities to grassroots organizations.[48] Others argue that those CDCs with active resident participation are well-positioned to effect widespread neighborhood change.[49] For the most part, the more than 2,000 CDCs today continue to specialize in affordable housing production.[50] However, as new community building and comprehensive community initiatives are increasing in stature among community development practitioners and funders, some CDCs are returning to their former community-based roots and collaborating on broad-based, people-focused strategies. This renewed importance on the social welfare of residents "represents a return to the original, comprehensive intent of community development and reflects the growing recognition that housing alone cannot reshape distressed communities."[51]

Community Building

There is general recognition among community development practitioners, policymakers, and private foundations that externally-developed programs and services (whether they target people or places), which fail to engage local residents and institutions, fall short of producing sustained and lasting change. As the challenges in local communities grow ever more complex, new theories

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[48] Peterman, 49 and Randy Stoecker "The CDC Model of Urban Redevelopment: A Critique and an Alternative," *Journal of Urban Affairs* 19, no. 1 (1997).

[49] Pitkin, November 2001, 12.

[50] Stoutland, 200.

[51] Norman Glickman and Lisa Servon, "More Than Just Bricks and Sticks," Working Paper no. 132 (Center for Urban Policy Research, Rutgers State University of New Jersey, 1997), 3.

have emerged about the need to identify and build on existing community assets. This approach involves a broad array of policies and activities to bring about "social justice, political efficacy, and economic vitality."[52] These notions are in stark contrast to the previous strategies of bringing external resources into low-income neighborhoods. Rather, the focus is on building the local capacity – in the form of community assets or community capital – to implement and sustain real change. Ferguson and Dickens outline five forms of community capital (see sidebar), which provide a useful framework for thinking about the inputs (strategies) and outputs (outcomes) of community building. Within the literature, there appear to be three key concepts around the notion of building community power and efficacy: asset-based development, capacity building, and comprehensive community building.

Asset Building

The idea of focusing on community assets as opposed to community needs or deficits arose in the early 1990s through the work of John Kretzmann and John McKnight. Their publication, *Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets*, received such widespread response that they started *The Asset-Based Community Development Institute* at Northwestern University to promote a capacity-driven focus. Asset- or capacity-driven community development identifies and promotes the gifts and skills within a community, as opposed to a needs-based approach, which focuses on negative images of the community. These negative images can lead to false perceptions about the neighborhood, even by community members themselves. Asset-based approaches have had a significant influence on the community

Five Forms of Community Capital

1. Physical capital, in the form of buildings, amenities, and tools

2. Intellectual or human capital, which includes skills, knowledge and confidence

3. Social capital, such as norms, shared understanding, trust, and productive relationships

4. Financial capital, such as disposable income and savings

5. Political capital, which enables the capacity to exert political influence

Ferguson and Dickens, 4-5.

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[52] Ferguson & Dickens, 2.

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development field and have led to a number of asset-mapping projects, where communities integrate mapping techniques with community development strategies. While primarily focused on the internal assets of a community, asset-based development also recognizes the importance of connecting to external resources and power. The goal of the asset-based approach is fostering community mobilization efforts to "leverage outside resources to support locally-driven development."[53]

Capacity Building

Capacity, with respect to community building, refers to the capabilities of individuals, organizations, institutions, and networks to collectively promote and sustain the well-being of a community. Asset building is related to capacity building in that it is one strategy for building community capacity. However, capacity building is more comprehensive: the focus is not just on individual assets, but how these assets interact with one another to make the community "work." Many community development scholars and practitioners believe that community capacity is essential to well-functioning communities. Community capacity is directly related to a community's ability to assess, plan, and effect community change. Embedded in this idea is the need for individuals to work together to solve community problems through consensus, trust, and common goals. These actions foster the creation of social capital to address adversities and take advantage of opportunities.[54] However, capacity building is "a process

Community Capacity

...the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of that community. It may operate through informal social processes and/or organized efforts by individuals, organization and social networks that exist among them and between them and the larger systems of which the community is a part.

Robert J. Chaskin, et al., *Building Community Capacity* (New York: Aldine de Gruyter, 2001), 7.

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[53] John P. Kretzmann and John L. McKnight, *Building Communities from the Inside Out: A Path toward Finding and Mobilizing a Community's Assets* (Center for Urban Affairs and Policy Research, Northwestern University, 1993), 353

[54] Thomas Kingsley, Joseph B. McNeely, and James O. Gibson "Community Building: Coming of Age" online paper of The Urban Institute's Development Training Institute, Inc. (1997), http://www.cpn.org/topics/community/commbuild.html#preface

as well as an outcome: it includes supportive organization structures and processes: it is multidimensional and ecological in operating at the individual, group, organizational, community and policy levels, and it is context specific."[55]

Comprehensive Community Building

While community development efforts have theoretically always been concerned with the "whole community," over the years many community development institutions grew to specialize in one or two areas and worked in isolation from other neighborhood activities. However, with shrinking funding available to address the complex and interrelated challenges in today's neighborhoods, community development initiatives today are increasingly seeking to "replace piecemeal approaches with broader efforts to strengthen the connections among economic, social, and physical needs."[56] However, acting comprehensively does not mean doing everything at once. Successful community building requires entrepreneurial and incremental approaches. The goal is to strategically partner and collaborate across sectors that have historically worked independently on community concerns. A number of national foundations such as the Edna McConnell Clark Foundation, the Annie E Casey Foundation, the Surdna Foundation, the Pew Charitable Trust, and the Ford Foundation have launched programs to support comprehensive community building initiatives in cities

Components of Community Capacity
- Social networks & inter-organizational
- Community resources
- Community skills
- Sense of community
- Community values
- Understanding community history
- Critical reflexivity
- Citizen participation
- Community power

Anne C. Napier, *Lessons for Community Capacity Building: A Summary of the Research Evidence* (Mount Isa Center for Rural and Remote Health, September 2002).
http://www.micrrh.jcu.edu.au/conference/p-napier.pdf

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[55] Robert Goodman, Marjorie Speers and Kenneth McLeroy, "Identifying and Defining Dimensions of Community Capacity to Provide a Basis for Measurement," *Health Education and Behavior* 25, no. 3 (June 1998), 2.

[56] Anne C. Kubisch, "Comprehensive Community Initiatives: Lessons in Neighborhood Transformation" (NHI Shelterforce Online, Jan/Feb 1996),
http://www.nhi.org/online/issues/85/compcominit.html

across the country.[57] These wide-ranging efforts aim to create structural changes in the way that residents and institutions collectively approach community concerns. However, meaningful resident involvement and institutional collaboration continue to be ongoing challenges. "Building and sustaining resident involvement is one of the least understood and toughest aspects of community building, yet it is the foundation of all else."[58] As many of the institutions initially agree to collaborate out of financial need, the challenge remains for organizations to see collaboration as an opportunity.

Neighborhoods and Collective Action

As I have described, the field of community development has ebbed and flowed over the last century. However, one pillar has remained: the importance of place. Since its very beginning, the community development field has remained resolute in its focus on people in a particular place.

In their writing on the political economy of place, John Logan and Harvey Molotch highlight the unique role neighborhoods play in cities. Not only does a neighborhood serve as a critical voting block in city politics, but a neighborhood establishes a special collective interest among individuals. People who live in a neighborhood share the same quality of public services and amenities, which Logan and Molotch call collective consumption. In addition, each neighborhood has a particular economic and social standing vis-à-vis other neighborhoods that affects the quality of life of its residents and the opportunities available to them.

Some of the most politically significant (and politically volatile) interests that people possess are tied to land and buildings that they personally use for shelter or profit. Domestic property has a physical, spatial dimension -- as does the "community of interests "that people share by virtue of their common relation to that property. These interests are indigenous to a particular locality. They are affected by what happens in and to that locality. They are a large part of what makes collective action in the place of residence both a strategic possibility and, under the right conditions of consciousness and organization, a political reality.

John Davis, *Contested Ground: Collective Action and the Urban Neighborhood* (Ithaca, NY: Cornell University Press, 1991), 307 quoted in Pitkin, 25.

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[57] Shelterforce, "Comprehensive Community Initiatives: Selected Initiatives" (NHI Shelterforce Online, Nov/Dec 1997), http://www.nhi.org/online/issues/96/cciinits.html

[58] William Traynor, "Community Building: Hope and Caution," (NHI Shelterforce Online, Sept/Oct 1997), http://www.nhi.org/online/issues/83/combuild.html

Neighborhoods are, in a sense, communities of fate. Logan and Molotch argue that one must consider the stratification of places, along with the stratification of individuals, in order to understand the distribution of "life chances."[59]

Pitkin reviews several major schools of thought with respect to collective action to develop lessons for neighborhood-based mobilization.[60] He concludes that quality-of-life issues and local identity are important factors in individual motivation to participate in collective action. Targeted efforts in neighborhoods and the more recent focus on building community assets are examples of this notion of tapping into local identity to motivate individuals in communities. Another component of collective action is the focus on a "common problem of a shared grievance" as a way of bringing individuals together. Again, going back to Logan and Molotch's idea of collective consumption, organizing individuals around issues that affect their neighborhoods is fundamental to community organizing. Pitkin also discusses the power of social networks in community building. Related to the idea of social capital, tapping into networks of institutions, organizations, and individuals facilitates action through "established lines of interaction."[61]

Once individuals are motivated to act, the next step is to keep them engaged. Pitkin suggests a number of strategies for sustaining local action over time. Assembling resources or community investments – both in terms of time and money – is critical to sustaining involvement. Community education and leadership is also critical, along with a raised level of consciousness and a sense

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[59] Logan and Molotch, 19.
[60] Pitkin, November 2001, 18-33.
[61] *Ibid*, 26.

Thus, local communities, constructed through collective action and preserved through collective memory, are specific sources of identities. But these identities, in most cases, are defensive reactions against the impositions of global disorder and uncontrollable, fast-paced change. They do build havens, but not heavens.

Manuel Castells, The Power of Identity (Oxford: Blackwell Publishers, 1997), 64 quoted in Pitkin, 29.

of agency. Pitkin also argues that forming linkages with outside groups or coalitions is necessary for long-term sustainability. As local action can effectively address neighborhood concerns only to a certain point, regional and global factors may prevent long-term success. Issues such as transportation, housing, economic development, job training, growth management, and the environment are increasingly being addressed on a regional level. Therefore, linking to broader efforts to address neighborhood concerns is an important strategy for sustaining collective action.

Information Technologies and Community Development

As this chapter has illustrated, there have been a number of changes in technology and social policy that suggest both an opportunity and a need for using information technologies to advance local neighborhood goals. However, as these technologies are rapidly transforming the way private businesses and public agencies do business, they have been slow to penetrate the community development field. In 2001, Structured Employment Economic Development Corporation (Seedco) surveyed 353 community development institutions, including CDCs, CDFIs, community-based organizations (CBOs), and intermediaries to assess the role that information technologies currently play in their internal and external activities. Results indicate that few community development organizations have gone beyond the routine use of technology in their work (email, networking, spreadsheets, word processing, the Internet). While most organizations were well-equipped with current technology for everyday use, few were making use of advanced software such as GIS to support planning and community development efforts. Some of the primary

challenges facing CDCs and other community organizations revolve around funding, staff, training, and data constraints.[62]

Yet, even as many community organizations lack the technology, expertise or staff to undertake sophisticated mapping and data analysis projects, select organizations are utilizing the services of intermediaries such as LISC,[63] a local university, or a "data non-profit" to bring mapping technologies into neighborhoods. It is important to note that most efforts have involved partnerships with research or data institutions. Many of the examples highlighted below are summarized from two recent reports on the use of GIS technologies by community development organizations, one by LISC and the other by PolicyLink. While these examples are far from standard practice, they do help shed light on the potential ways that information technologies can more broadly support the ability of community development organizations to improve communities and communicate results to funders and other stakeholders.

Documenting, Analyzing and Monitoring Neighborhood Change

The most common way that information technologies are supporting community development efforts is examining and monitoring neighborhood conditions and trends. In Buffalo, NY, the Westside Community Collaborative used community mapping to document neighborhood conditions in support of a community process to identify revitalization priorities.[64] Lawrence CommunityWorks, Inc. (the CDC I have been involved with in Massachusetts) uses parcel-level data and

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[62] Seedco, March 2002.

[63] Local Initiatives Support Corporation.

[64] PolicyLink, "Community Mapping: Using Geographic Data for Neighborhood Revitalization" (Oakland, New York: PolicyLink, 2002), 6. http://www.policylink.org/RE_Mapping.html

mapping to track its work over time and demonstrate tangible results from development efforts in its service areas (see page 55).

Identifying Development Opportunities

Mapping has also been used by a number of organizations to support economic and housing development efforts. In New York City, the Metropolitan Waterfront Alliance worked with the Community Mapping Assistance Project (CMAP) to illustrate the importance of waterfront development for environmental, economic, and political purposes. In Philadelphia, the New Kensington CDC worked in a community with over 1,000 vacant and blighted lots. In partnership with the Philadelphia Association of CDCs and the citywide Philadelphia Neighborhood Information System, the organization developed in-house GIS technology to identify and reclaim 60% of these parcels over five years.[65]

Building Community Capacity and Support Systems

One of the few examples of community capacity building efforts, The Piton Foundation in Denver, works with the Westside Neighborhood Leadership Program to train emerging community leaders on how to obtain and use neighborhood data effectively to advance community goals. Through its Neighborhood Leadership curriculum, participants learn about the type of information available about their neighborhood, how to obtain and interpret data, how to develop their own geographic data, and how to use these data to advance policy initiatives. In addition, participants are given an individual consultation in which they select one or two issues they plan to devote their energies to once they complete the program. For example, graduates have used their training to

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[65] *Ibid*, 7.

bring about policy changes at local schools, secure expanded recreational services, and encourage community members to vote on important community issues.[66]

Organizing and Advocating for Policy Change

Maps and data analysis have helped several groups effectively organize and advocate for policy change and communicate important information to diverse audiences about community needs and opportunities. In Los Angeles, community groups used GIS to respond to a proposed Staples Center in downtown Los Angeles. Using maps and data to document surrounding neighborhood conditions, community organizers secured a landmark benefits package from the developer for affordable housing, local hiring, open space and resident parking provisions.[67]

The Providence Plan worked with the Rhode Island Organizing Project (RIOP), a faith-based community group, to analyze and map parcel data demonstrating patterns among specific property owners, tax titles, and vacant lots. These data supported successful lobbying efforts to win state legislation which increased accountability of absentee landowners. The new legislation shifts the liability from property title owners to tax title owners, gives municipalities first right in tax sales, and requires out-of-state owners to have a local agent.[68]

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[66] NNIP, 1999, 17-18.

[67] PolicyLink, 2002, 8.

[68] NNIP, 1999, 10.

Tracking Program Success and Sharing Outcomes

Data, information and mapping are used by several community development organizations to monitor and communicate program success. The Philadelphia Association of CDCs uses GIS mapping to evaluate the impact of community development to determine resource allocations.[69] The St. Paul Community GIS Consortium is using GIS and to cross-reference clients served with home improvement assistance and housing conditions. They hope to use results from a neighborhood conditions survey to determine the impact of their neighborhood investments.[70] Similarly, Lawrence CommuntiyWorks is mapping participants of asset-building programs against demographic characteristics such as poverty and density. Results have confirmed for staff and the Board that the organization is succeeding in reaching the population most in need of services in Lawrence.

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[69] PolicyLink, 2002, 9.

[70] Lauren Blackford and Lisa Mueller "Partners Power GIS" (NHI Shelterforce Online, Nov/Dec 2002), http://www.nhi.org/online/issues/126/gispartners.html

CHAPTER 2: THE LAWRENCE PROJECT

This chapter provides a context for this investigation by describing the City of Lawrence, LCW, and the burgeoning partnership between MIT and LCW. As previously stated, the fundamental objective of this thesis is to understand the opportunities and challenges of using information technologies to support community development and citizen empowerment. This investigation is framed and analyzed through the lens of one particular CDC in Lawrence, Massachusetts. My interest in this research grew out of coursework and an internship with Lawrence CommunityWorks (LCW). In the spring of 2002, I participated in a GIS workshop at MIT, with the objective of assisting LCW in better understanding key demographic and housing trends in the City of Lawrence. The following summer I worked with LCW on additional research and helped to enhance the organization's in-house GIS capabilities. These experiences spurred a personal interest in understanding the ways in which a CDC can utilize information technologies to empower residents and improve neighborhoods.

Figure 2.1: State of Massachusetts
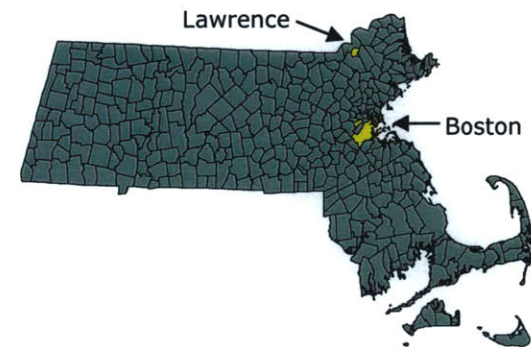
Figure 2.2: Aerial Photo of Lawrence

Understanding Place: The City of Lawrence

Located just 25 miles north of Boston, the City of Lawrence has played an important role in the growth of the Massachusetts economy. Founded in 1847 as a planned industrial town on the Merrimack River, by the early 1900s Lawrence had become one of the major textile manufacturing centers of the world, employing more than one-third of its 95,000 residents (mostly immigrants) in its mills. Much of the City's early development is primarily due to the textile and manufacturing contributions of immigrants from countries such as Italy, Ireland, Poland, and Syria. However, beginning in the 1920s restrictive immigration laws,

Photograph courtesy of GenCorp and *Reviviendo* Gateway Initiative.

such as the National Origins Act of 1924,[71] stemmed the flow of immigrants into Lawrence and much of the country. Between 1920 and 1980, Lawrence's population declined by almost a third, and until the 1970s there were few new immigrants arriving in Lawrence. In 1910, Lawrence's foreign-born population was estimated to be over 48 percent of the population;[72] by 1960, that number had dropped to 16 percent.[73] Beginning in the 1960s, more favorable immigration policies under the Immigration Act of 1965, as well as political and economic conditions worldwide, have brought hundreds of thousands of new immigrants to the United States, most of which are concentrated in the northeast.[74] According to the 2000 US Census, the foreign-born population in Lawrence has increased to 30 percent, reflecting national trends. In 1910, the US foreign-born population was around 15 percent, decreasing to just over 5 percent in 1960, and increasing to over 10 percent in 2000.[75] Hispanics and Latinos have accounted for much of the recent flow of immigration in the United States, along with growing numbers of Asian and Pacific Islanders. As we will see more clearly in the next section, these patterns have contributed to a majority Latino population in Lawrence today.

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[71] The National Origins Act of 1924 placed strict quotas on the proportion of immigrants entering the county by origin.

[72] Jessica Andors, City and Island: Dominicans in Lawrence: transnational community formation in a globalizing world (MCP Thesis, MIT, 2001), 34.

[73] US Census Bureau, US Census of Population: 1960, General Social and Economic Characteristics, Massachusetts, Final Report PC(1)-23C (Washington DC: GPO, 1961).

[74] US Census, Bureau, "Profile of the Foreign-Born Population in the US: 2000," Current Population Reports, Series P23-206 (Washington DC: GOP, 2001), 15.

[75] Ibid, 9.

Over the last 80 years, Lawrence has been losing its manufacturing base – first to the non-union south beginning in the 1920s, and then more severely in the 1960s to cheaper labor overseas. Between 1969 and 1996, the City lost roughly two-thirds of its industrial employment base, translating to more than 12,000 jobs.[76] The tale of Lawrence's boom and bust is like that of most other industrial cities, particularly in the northeastern United States. Lawrence's industry and local economy prospered well into the 1950s, at which point the wool industry declined severely and resulted in the first mill closure. In the years that followed, modernizing industries evolved to render Lawrence's mill space obsolete.[77] As wealth and the middle-class moved out to the suburbs and new immigrants arrived, the city faced significant social needs and a weakened tax base. As in the case of many struggling urban cores, several phenomena can be attributed to the exodus of wealth, employment and the white middle-class: institutionalized racism (redlining), the rise of the post-industrial economy, globalization, interstate highways, and the GI Bill.[78] Despite subsequent economic booms Lawrence continued to stagnate, as much of the surrounding Merrimack Valley region succeeded in attracting high technology industries.

According to the 2000 US Census, the largest industry employing Lawrence residents is manufacturing (26.2 percent), followed by education, health and social services (18.9 percent), and retail trade (10.1 percent). There is a clear

Figure 2.3: City of Lawrence

North Common Neighborhood
Streets
Water Bodies & Rivers

0   0.5   1   1.5   2 Miles

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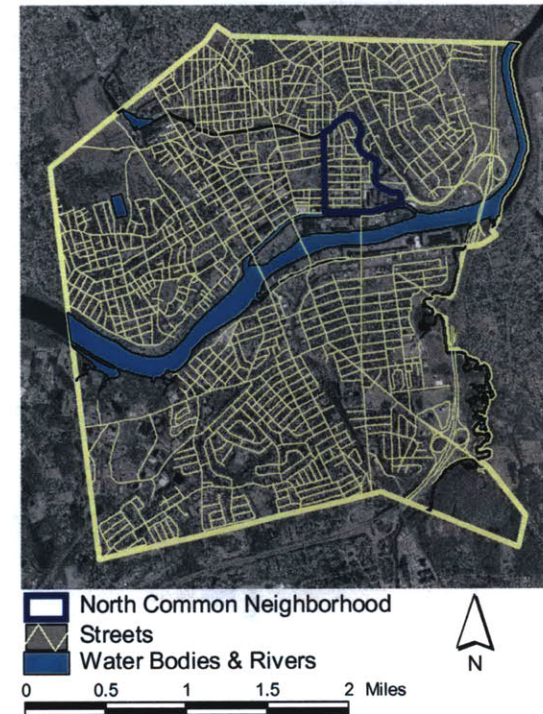
[76] Andors, 32.

[77] Katharine Gormly, *Old Patterns, New Paths: A Look at Lawrence, Massachusetts' CDBG Program and Allocations* (MCP Thesis, Tufts University, 2003), quoting City of Lawrence Planning Department, *Master Plan for Community Renewal*, City of Lawrence, Massachusetts, 1970.

[78] Douglas Massey and Nancy Denton *American Apartheid: Segregation and the Making of the Underclass* (Cambridge: Harvard Press, 1993); Dennis Judd and Todd Swanstrom *City Politics: Private Power & Public Policy* (New York: Harper Collins, 1994).

need to connect Lawrence residents with the skills necessary for obtaining higher-paying jobs in the region. In fact, key industry associations in the area have reported significant skill shortages in high technology, health care, and biotechnology.[79]

Looking within Lawrence

As discussed above, Lawrence faces considerable social, political, and economic challenges. As an older industrial town, Lawrence struggles in the new world of globalization, economic restructuring, and suburbanization. While recent waves of new immigrants have brought vitality and opportunity in the face of years of population decline, the City's eroding manufacturing base, vacant and contaminated lands, and inadequate tax base pose significant barriers to addressing joblessness, a failing school system, environmental remediation and the literacy and training needs for the growing immigrant population. Looking within Lawrence, these issues appear highly concentrated. The demographic maps in this section help to illustrate the relationship between ethnicity, language, education and wealth in Lawrence. Unless otherwise noted, data used in this analysis was downloaded from the US Census Bureau's American Factfinder website.[80]

Lawrence's population is just over 72,000, with an overall density of 10,673 persons per square mile compared with Boston's average of 13,488 persons per square mile. Figure 2.4 illustrates that most residents are concentrated in the north and northwest parts of the city, where density triples the citywide average.

Figure 2.4: Density by Census Tract

Density (persons per sq.mile)
- 4,376 - 7,649
- 9,520 - 11,083
- 12,864 - 16,885
- 19,838 - 23,212
- 25,697 - 32,028
- Water
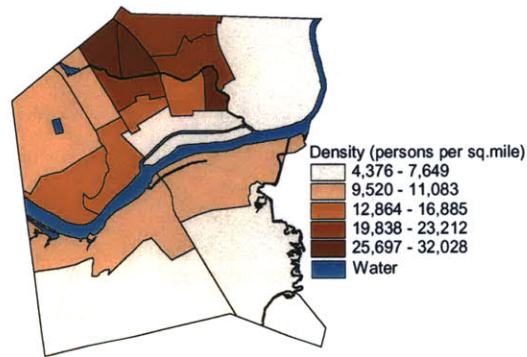
Legend detail:
Quantile classification with five classes

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[79] Massachusetts Workforce Board Association, "Quarterly Meeting Report" (October 2002).

[80] http://factfinder.census.gov/

Today approximately 30 percent of the Lawrence residents are foreign-born, with 60 percent of the population self-identified as Latino (up from 42 percent in 1990)[81] and 3 percent as Asian. As shown in Figure 2.5, Latinos are primarily concentrated in the north and northwestern parts of the city. Lawrence has the highest concentration of Latinos in the region, and ranks 135th among all US cities with a population over 10,000. Lawrence has the highest proportion of Latino student enrollment in the state, accounting for 81 percent.

Median household income in Lawrence is approximately $28,000 and one out of five families live in poverty. With 68 percent of Lawrence's housing units renter-occupied, 42 percent of these renters are paying more than 30 percent of their household income. As Figure 2.6 shows, there is a spatial dimension to these statistics – poverty is highly concentrated in the north, which corresponds with the Latino area of the city. The area noted as "Renewal Communities Zone" (RCZ) has been recently designated by the Department of Housing and Urban Development (HUD) as an area eligible for a range of economic development tax benefits.[82]

According to the Department of Employment and Training (DET), the August 2002 unemployment rate was almost 13 percent, compared to just over 7 percent for the region, and 5 percent for the state. Lawrence residents are clearly not benefiting from the region's economic success. Figures 2.7 and 2.8 on the next page illustrate how employment and labor force participation are distributed

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[81] US Census Bureau, 1990, http://factfinder.census.gov/.

[82] With the Renewal Communities designation, qualifying businesses (either located in the Zone or hiring 30 percent of their employees from the Zone) receive tax benefits such as employment credits, deductions for investment, commercial revitalization reductions, capital gain exclusions, and New Market Tax Credits.

Figure 2.5: Percent Hispanic/Latino by Census Tract

Percent Hispanic or Latino
- 18% to 52%
- 54% to 63%
- 64% to 76%
- 82% to 83%
- 84% to 87%
- Water
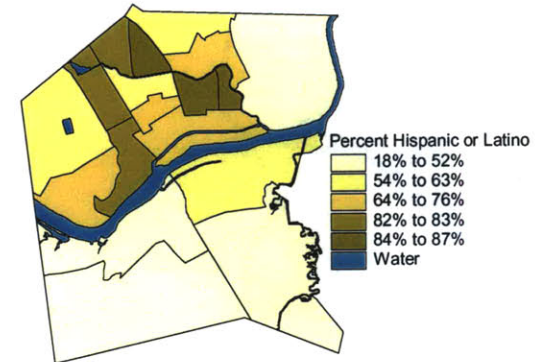
Legend detail:
Quantile classification with five classes

Figure 2.6: Median Household Income by Census Tract

Median Household Income
- $9,968 to $17,051
- $17,724 to $24,265
- $25,172 to $29,536
- $30,508 to $32,986
- $34,855 to $45,981
- RCZ
- Water
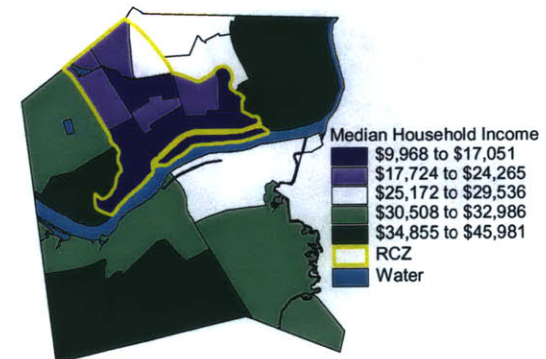
Legend detail:
Quantile classification with five classes

Figure 2.7: Percent Unemployed (16+) by Census Tract

Percent Unemployed (16+)
- 2% to 6%
- 6% to 10%
- 10% to 15%
- 15% to 16%
- 16% to 17%
- Water
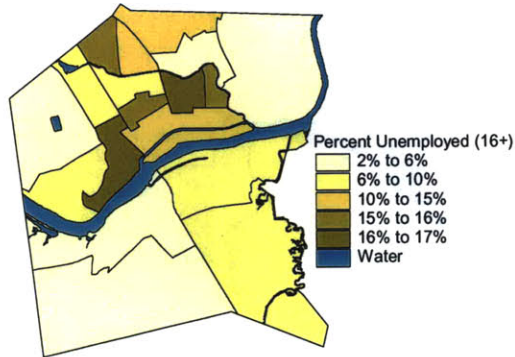
Legend detail:
Quantile classification with five classes

Figure 2.8: Percent Not in Labor Force (16+) by Census Tract

Not in Labor Force (16+)
- 33% to 40%
- 40% to 48%
- 48% to 49%
- 49% to 63%
- 63% to 66%
- Water
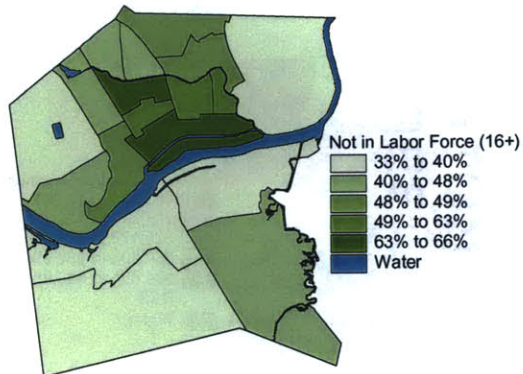
Legend detail:
Quantile classification with five classes

across the city.[83] Similar to the maps we have already seen, there is a significant spatial dimension to both unemployment and labor force participation. Unemployment rates in the denser, Latino areas reach as much as 17 percent, while the number of adult residents not participating in the labor force reaches over 60 percent.[84]

With such a significant Latino and immigrant population in Lawrence, language has become a critical issue in the tensions over culture, ethnicity, and power. In the summer of 2001, *The Eagle-Tribune*, a local paper, examined the cultural and political rift between Lawrence's Anglo and Latino population in its 10-part *Building Bridges* series. The single largest issue raised by the more than 300 readers who contacted the paper during the series was language. Language proved to be the "lightening rod for Anglo resentment of Latinos" as exemplified by comments such as "why don't they speak English" or "they yap in Spanish instead of speaking English" or "why aren't they proud to become Americans and speak our language."[85] Yet, many Latino residents want to learn English. Waitlists for English for Speakers of Other Languages (ESOL) classes exceed

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[83] Note: The US Census data used in the maps depict the economy several years before the 2002 DET estimate. At the time of the 2000 US Census, the DET estimate was around 8%, so given the decreasing performance of the economy in 2002, it is likely that these maps illustrate a brighter picture that what exists today.

[84] Unemployment = individuals not working but actively looking for work / individuals in the labor force. Not in the labor force = individuals not actively looking for work (in school, prison, retired, or not actively looking for work - could be discouraged workers).

[85] Fernanda Santos and Taylor Armerding "English Spoken Here", *The Eagle-Tribune*, July 20, 2001, http://www.eagletribune.com/specials/buildingbridges/20010720/FP_001.htm.

1,200 applicants in Lawrence, a phenomenon that exists in many parts of Massachusetts.[86]

Using self-reported data, the estimated percentage of limited English speakers in Lawrence is 16 percent.[87]   While 16 percent is a significant number in itself, Figure 2.9 illustrates that the percentage reaches 36 percent in some parts of the city.   This area closely correlates with the denser Latino areas that experience the highest poverty and unemployment rates.   This is not surprising given findings that immigrants with limited English skills earn 24% less than fluent speakers.[88]

In looking at the educational system in place to support Lawrence residents, it does not bode well that Lawrence High School, located in the Renewal Communities Zone, lost its accreditation in 1997.   In addition, scores on the Massachusetts Comprehensive Assessment System (MCAS) test for Lawrence 10th graders have consistently been the lowest in the region and the state.[89]

In 2001, 53 percent of Lawrence 10th graders received failing/warning scores on the English Language Arts section of MCAS, while 61 percent received failing/warning scores on the Mathematics section.   In comparison,

Figure 2.9: Percent with Limited English (5-64) by Census Tract

Limited English (5+)
- 6% to 11%
- 11% to 17%
- 17% to 21%
- 21% to 26%
- 26% to 36%
- Water
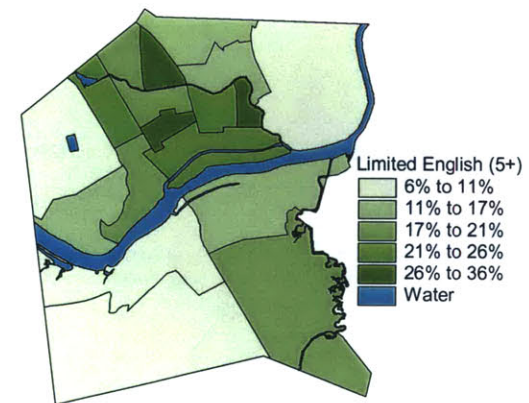
Legend detail:
Quantile classification with five classes

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[86] *Ibid.*

[87] For purpose of this paper, limited English speaker is defined as individuals between the ages of five and 64 self-reporting to "speak English not well" or "speak English not at all" on the 2000 US Census.

[88] MassINC, *New Skills for a New Economy: Adult Education's Key Role in Sustaining Economic Growth and Expanding Opportunity* (MassINC, 2000), http://www.massinc.org/handler.cfm?type=2&target=New_Skills/index.html

[89] MCAS was adopted in 1998. All students in the 10th grade must score above failing/warning in English language arts and math to graduate from high school.

Figure 2.10: Percent with No Diploma (25+) by Census Tract

With No Diploma (25+)
- 21% to 37%
- 37% to 42%
- 46% to 51%
- 53% to 56%
- 60% to 69%
- Water
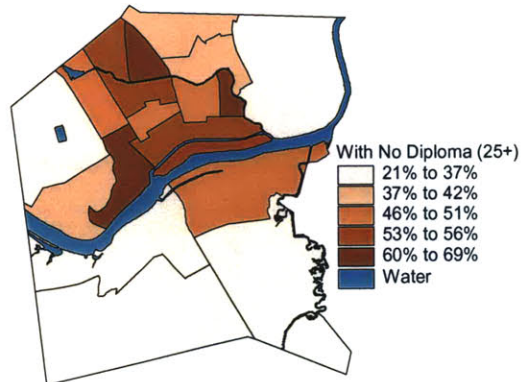
Legend detail:
Quantile classification with five classes

failing/warning scores for the region were 21 percent and 28 percent, respectively, and for the state, 18 percent and 25 percent, respectively.[90] On average, 42 percent of adults 25 or older lack a high school diploma in Lawrence. Looking at Figure 2.10, this percentage is between 50 and 70 percent in the Renewable Communities Zone, which is predominantly Latino and with the highest rates of unemployment and poverty.

Measuring literacy in Lawrence is a bit trickier than estimating the percentage of adults with a high school diploma or the percentage of students failing MCAS. However, in 1992 the Department of Education commissioned a national survey to assess adult literacy. The survey assessed literacy for some 13,600 adults on a scale of one to five, with five being the highest literacy level. Using a statistical model developed by Portland State University, results from this survey and select data from the 1990 US Census can be used to estimate literacy levels in specific cities, counties, or states.[91] Using this model, 70 percent of Lawrence residents are estimated to be below NALS Level 3, which is far greater than in the region and state (Essex County is 36 percent and Massachusetts is 40 percent). NALS Level 3 is significant in that a MassINC study finds that this is one of the three essential ingredients to securing a living wage job.[92]

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[90] The Massachusetts Department of Education,
http://www.boston.com/mcas/scores2001/district_results_summary.pdf

[91] The model combines NALS data and select 1990 Census Data including: Education, English Proficiency, Labor Force Status, Occupation, Race/Ethnicity, Immigration, Disability, Weeks Worked, http://www.casas.org/lit/litcode/.

[92] MassInc, 2000.

Planning & Political Context

Lawrence faces many of the challenges endemic to third-tier cities. Third-tier cities are defined and examined in a 2001 study by Mt. Auburn Associates Inc. as cities with a population between 15,000 and 110,000 which were incorporated prior to 1950, are primary to the regional economic base, and have not tripled in population since 1950.[93] Using this definition, the study estimates there to be 396 third-tier cities in the United States. Some examples include Lawrence, Lowell and Fall River, Massachusetts; Olympia, Washington; Jefferson City, Missouri; Albany, New York; Danbury, Connecticut; and Beloit, Wisconsin. While these cities differ in a number of ways, there are several features that accurately describe them as a group: out-of-date infrastructure, dependence on traditional industry, transformation of human capital base, weakened civic infrastructure and capacity, and limited access to resources.[94] These challenges directly impact the ability of a city like Lawrence to address critical issues such as joblessness, the loss of a stable working class, abandoned mill buildings, environmental contamination, failing schools, a struggling downtown, and the needs of immigrants.

The new wave of immigrants to Lawrence has given rise to ethnic and political tensions. In 1998, with the Latino population approaching 50%, only one of the nine City Councilors was Latino. With three Latino City Councilors today, these statistics are improving. However, there is still widespread distrust of city government among the Latino population.[95] The cultural, political, and social

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[93] Mt. Auburn Associates Inc., *Third-Tier Cities: Adjusting to the New Economy*, (US Economic Development Association, US Department of Commerce, 2001), 5,
http://www.osec.doc.gov/eda/pdf/1g3lr_8_siegel.pdf

[94] *Ibid*, 11.

[95] Various interviews conducted as part of other coursework at MIT in January, 2003.

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gaps that exist between Anglos and Latinos in Lawrence were well documented in the *Building Bridges* series. As one Latino leader explains "the powers that be have not made the necessary changes to include us, to make us part of the decision-making process...when it comes to politics, we are just starting."[96] Similarly, several Latino leaders I spoke with characterized Lawrence as a colonial city, with the majority Latino population controlled by the minority white population.[97]

For a city that originally began as a highly planned industrial town, there has been little effective or comprehensive planning to guide its future.[98] The first attempt to update the city's 1970 Master Plan was 29 years later in 1999. Described by most as a debacle, the planning effort initially engaged a very select group of constituents, who were hardly representative of the broader Lawrence community. When efforts to engage the larger community did finally occur, the poorly designed process brought little meaningful engagement with residents and community leaders. Coupled with an overall lack of technical rigor, the plan was never finalized or distributed.[99] Similarly, the HUD Consolidated Plan process reaches out to few stakeholders. The forum for public input is a general public meeting, which typically draws only a handful of individuals. There

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[96] Cathleen F. Crowley, "As Latino Population Surges, so does it power, influence," *The Eagle-Tribune*, July, 1 2001.

[97] Various conversations with Lawrence community members.

[98] Maggie Super, conversation with author, April, 2003; Marianne Paley, conversation with author, April, 2003.

[99] Tom Galligani, conversation and email with author, summer, 2002 and April, 2003.

has been a general lack in the City leadership to make these plans reflective of public sentiment.[100]

In speaking with the Lawrence community, there were two common, yet conflicting, perceptions about the political capacity within the City. The first perception, as expressed above, was echoed among the several Latinos I spoke with in Lawrence – the idea that there is an entrenched and powerful elite ruling class.[101] The second perception is much different; the idea that there is really no leadership or vision for the city – essentially a vacuum of power and an absence of productive civic engagement.[102] This notion is supported by one of the key findings in the Mt. Auburn report, which reveals that "just as these communities have many physical brownfields, they are also littered with organizational brownfields."[103] This has to do with the fact that civic leadership and strong institutions were created during the economic boom, when the city had a plethora of strong civic leaders. A common theme among many third-tier cities has been the evaporation of corporate and manufacturing leadership, resulting in a general loss in local ownership. Bill Traynor, Executive Director of LCW and an expert in the community development field, explained that these two very different "stories" about political leadership in Lawrence have serious implications for the strategies, tactics, and interventions pursued to effect change. In the case of the "powerful political machine", the optimal strategy is oppositional politics. However, if there is a "vacuum of power and leadership", there is nothing of real

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[100] *Ibid.*

[101] This finding is based on conversations with a handful of Latinos in Lawrence and is not representative of the diversity of opinions within the Latino community.

[102] Lawrence Project meeting, January, 29, 2003.

[103] Mt. Auburn Associates, Inc., 21.

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significance to oppose. The best strategy in this situation is to fill the vacuum with something positive. Traynor argues that part of the problem with organizing efforts in Lawrence has been the focus on the politics of opposition, rather than the politics of community building.[104]

Lawrence CommunityWorks, Inc. (LCW)

Following decades of de-industrialization and disinvestment, the North Common neighborhood in North Lawrence had become one of the poorest and most blighted in the city (Figure 2.3 on page 45 shows the location of the North Common neighborhood). By 1999, over one-third of the land was vacant or abandoned and homeownership rates hovered close to just seven percent.[105] Today, however, things are beginning to change. For the first time in decades the City is attracting new residents. The influx of Latino families is bringing new life and vitality to the Lawrence, particularly in the North Common neighborhood. Lawrence has the youngest population in the state and more than 90 percent of all homebuyers in Lawrence are Latino, a positive sign that the new residents are committed to the City's future.[106] The once empty storefronts are rapidly being populated by the entrepreneurial spirit of some 300 Latino-owned businesses in the City.[107] These small businesses are becoming an important economic engine in the City of Lawrence.

It's said that a rising tide raises all boats but for too long Lawrence has had a big hole in its hull. The great fortunes the country, the state and the region have enjoyed haven't been shared here...the hole in the boat is our inability to talk to one another. We need to set aside our differences so we can talk to people and make things happen.

Bill Traynor, *Reviviendo* Gateway Initiative event, quoted by Molly Manchenton, "Study: City's rules can thwart revival," *The Eagle-Tribune*, November 8, 2002.

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[104] Bill Traynor, conversation with author, April 17, 2003.

[105] Mark E. Vogler, "New Hope for North Common," *The Eagle-Tribune*, December 9, 1999.

[106] *Reviviendo* Gateway Initiative Steering Committee, Final Report, November 2003, http://www.lawrencecommunityworks.org/rgireport.html

[107] Jorge Santiago and James Jennings, James, *The Latino Business Community of Lawrence, Massachusetts: Profile & Analysis* (Northern Essex Community College & UMASS Boston, 2000).

Lawrence CommunityWorks, formerly Lawrence Planning & Neighborhood Development Corporation (LPNDC), was originally founded in 1986 by affordable housing activists to address the housing and disinvestment in North Lawrence though the construction of a 170 unit co-op in the North Common neighborhood.[108]   While this initial project was a success, by the late 1990s the organization's vision and effectiveness had waned. At that time, the organization had been de-funded by the City and State, with only one full-time staff person, an operating budget of only $60,000, and no projects in the pipeline.[109] In 1999, LCW's Board of Directors, through an intensive community organizing and planning effort, worked with community residents to develop a more comprehensive plan for the North Common neighborhood and spearheaded a leadership change to reinvigorate the fledgling CDC.

Since its rebirth in July of 1999, LCW – which is the only active CDC in Lawrence – has raised more than $11.5 million in debt and equity for neighborhood investments and has increased its operating budget from $60,000 to nearly $1 million. Accompanying this financial growth has been the development of a staff of 19, many of whom live in the North Common neighborhood and speak fluent Spanish. Working with residents and other community organizations, LCW's efforts have had a significant impact on the North Common neighborhood. As Figure 2.11 illustrates, in 1999 there were some 76 vacant lots and abandoned buildings in North Common. By 2002, close to 50 percent of these abandoned buildings and vacant lots are in various stages of development to provide community assets such as affordable housing, parks and gardens and

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[108] Lawrence CommunityWorks information on MIT course website, http://gis.mit.edu/classes/11.524/projects/lawrence_project_v3.htm

[109] Jessica Andors, Lawrence CommunityWorks.

Figure 2.11: Progress in Reclaiming Abandoned/Vacant Lots in Lawrence*
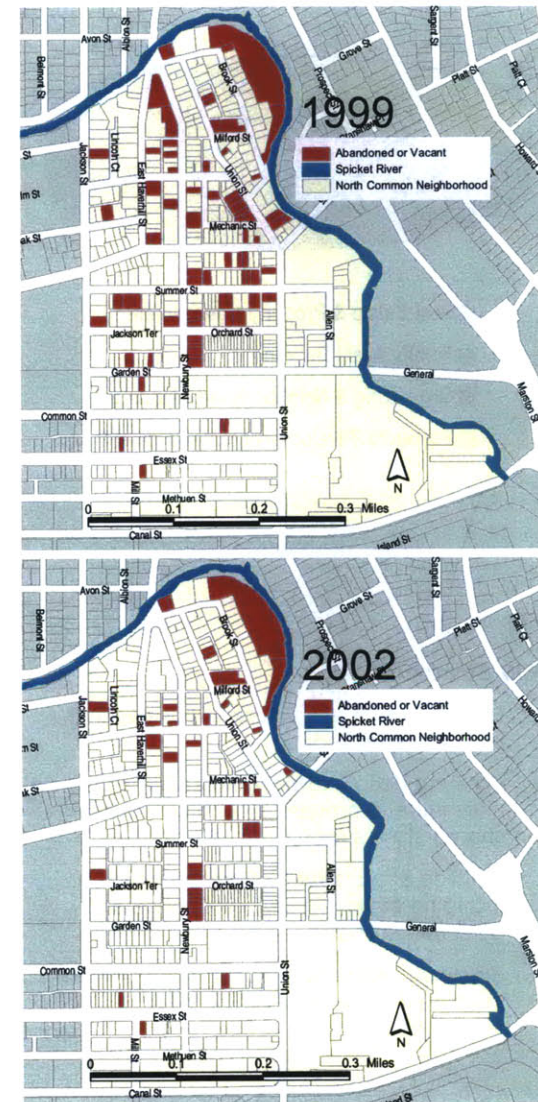
*includes parcels under site control or with a development strategy

Figure 2.12:
LCW Staff Resource Allocation

- Real Estate & Property Management
- Family Asset Building
- Organizing & Neighborhood Planning
- Resource Development & Management
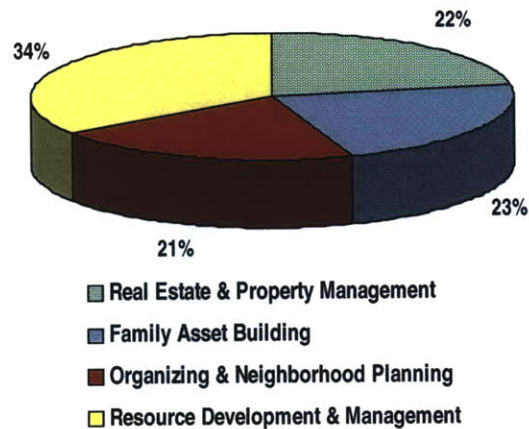
LCW Strategies

- Building an infrastructure of positive and productive leadership

- Creating deep knowledge that can support a dialogue and process around constructing shared stories for Lawrence's future

- Building a foundation of personal skills including basic literacy, confidence and personal strength

- Building a network of support through an incremental and iterative process

community facilities.[110] In just three years LCW and its partners have generated tangible, physical results in a neighborhood that has struggled with overwhelming disinvestment for years.

Even more striking than these physical achievements is LCW's commitment to organizing, planning, and community building. While the traditional bricks-and-mortar activities of housing and physical improvements are an essential element of LCW's work, the organization devotes a significant amount of staff and other resources to community building. As described in Chapter 1, this is a rarity in the world of community development corporations, which tend to focus on building physical assets. As illustrated in the Figure 2.12, among its four program areas (Real Estate and Property Management, Family Asset Building, Organizing & Planning and Resource Development and Management), LCW invests twice as much staff resources in its community-building activities (Family Asset Building and Organizing & Neighborhood Planning) than in its real estate work.

These community building investments are echoed in the conversations with LCW staff, who describe their goal in Lawrence as *building community power*. As Executive Director Bill Traynor explains, "power does not equal building things; real change does not equal real estate." LCW is primarily focused on building a change movement, centered on resident engagement. Traynor argues that psychological elements have a significant impact on the politics, leadership and economics of a community. "Communities have a collection of stories or memories which are carried forward to perpetuate hegemony or glorify the past. Stories have a powerful impact on redefinition and progress." His continued

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[110] While a number of the buildings and lots are not completed, all have been acquired and are currently in planning or development phases.

interest in the power of information technologies for community development work is connected to this idea of community stories. He believes that reliable information and effective communication are fundamental to developing a shared community narrative of the past, present, and future.

These themes will reappear in subsequent chapters of this thesis. The following sections provide a brief overview of the core program areas, activities, and specific accomplishments of LCW.

Figure 2.13:
Summer Street Neighborhood Park & Duplex Housing

Real Estate Development

LCW has leveraged close to $10 million in just four years for affordable housing, open space, and neighborhood institutions, including a neighborhood school and a community center. LCW's first project targeted one particular block (Summer Street) in the North Common, resulting in the creation of four affordable duplex housing units and a neighborhood park (Figure 2.13). Current efforts include the development of 17 additional units of affordable housing, remediation of a vacant industrial waterfront parcel for a public park, working with the school district to rehabilitate an old school building for a neighborhood-based school, and constructing an educational and community center on the site of an old church. Green building technologies are being used in the construction of the center, which will house the family asset building programs.

Family Asset Building (FAB)

FAB has become a central focus of LCW's efforts to invest in human, as well as physical assets. The ABC program works with adults on financial literacy to increase access to wealth and homeownership. In addition to training and workshops, the program offers Individual Development Accounts (IDAs), where

LCW provides a three-to-one match for $50 monthly savings of participants ($150/month). The program has grown into a powerful peer support network of dozens of residents eager to improve their life situations.

In addition to supporting adults, close to 70 youth are actively engaged in a variety of summer and after-school programs at LCW. What began as an architecture-focused effort called The Young Architects has exploded in a plethora of programs, serving multiple interests and created by the youth themselves. They include: The Young Webmasters, The Young Filmmakers, The Young Investors, The Young Producers, Youth Designing the Future, and Sk8Kids. In addition, LCW offers youth IDA, college prep, and after-school programs.

Organizing and Planning

From its inception, resident organizing and planning has been the foundation for all of LCW's work. An early organizing campaign illustrates how LCW's activities has evolved into comprehensive and community building strategies, all of which have built the foundation for a substantial multimillion dollar economic and community revitalization program for the North Common neighborhood.

In the late 1990s, absent any public process or comment, the Lawrence City Council downzoned the R-3 residential zone in Lawrence from a minimum lot size of 5,000 square feet to 10,000 square feet. These suburban-style dimensions had a detrimental effect on redevelopment efforts of Lawrence's mostly Latino urban core. Many of these lots were originally subdivided for factory row housing and were well under 10,000 square feet. The change meant

that all redevelopment efforts on parcels under 10,000 square feet were not by-right,[111] but subject to the approval of a variance by the Zoning Appeals Board (ZBA), which tends to be a highly political process. In 2001, Kristen Harol, currently the Deputy Director of LCW, was reading the fine print of legal notices in the local paper and happened to come across a public notice for a City Council vote on a similar downzone of the *General Business District*, which covers much of the North Common neighborhood. If passed, the zoning amendment would effectively zone out most redevelopment opportunities in the North Common neighborhood. What ensued was a year long battle between LCW with the support of North Common residents and the City Council over the public and legal process for zoning amendments. In the end, the vote never happened, which was a success for the North Common neighborhood, but an enormous amount of effort for a new community development institution.

LCW has also been proactively organizing in the North Common neighborhood. This community building strategy, called *Reviviendo* (meaning "Rebirth" in Spanish) has involved more than 300 residents in a comprehensive neighborhood planning process. Out of this effort emerged a formal stakeholder group for the North Common neighborhood called *Reviviendo* Planning Group (RPG). In addition to this neighborhood-wide approach, LCW's organizers work with residents on specific issues such as open space, schools, and contaminated lands. To support these activities, LCW is establishing a community design and planning center, which will not only serve as a resource to LCW staff, but to the community as a whole. Already, many of the Young Professionals are using the center for their ongoing design projects.

Figure 2.14: Parcels Less than 10,000 Sq. Ft. in North Common (90%)

- North Common Neighborhood
- Water Bodies & Rivers
- Streets
- Parcels <= 10,000 Square Feet

0   0.2   0.4 Miles

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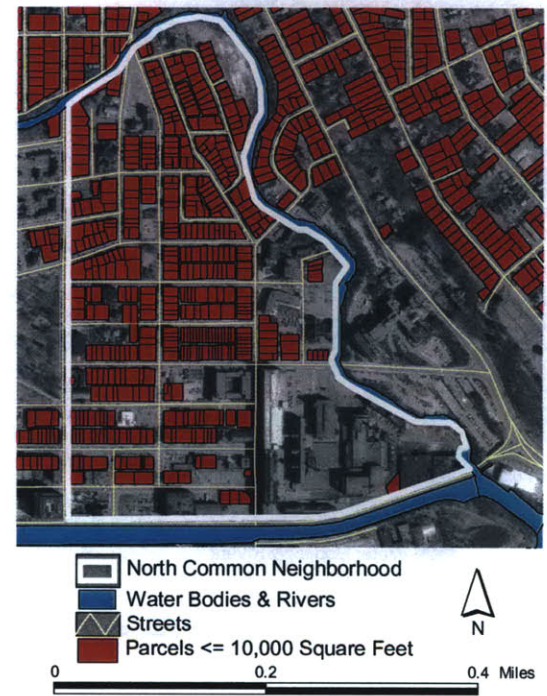
[111] Use permitted under the current zoning laws.

Figure 2.15:
Reviviendo **Gateway District**

Parks
North Common Neighborhood
Water Bodies & Rivers
Streets
Reviviendo Gateway District

0   0.2   0.4 Miles

N
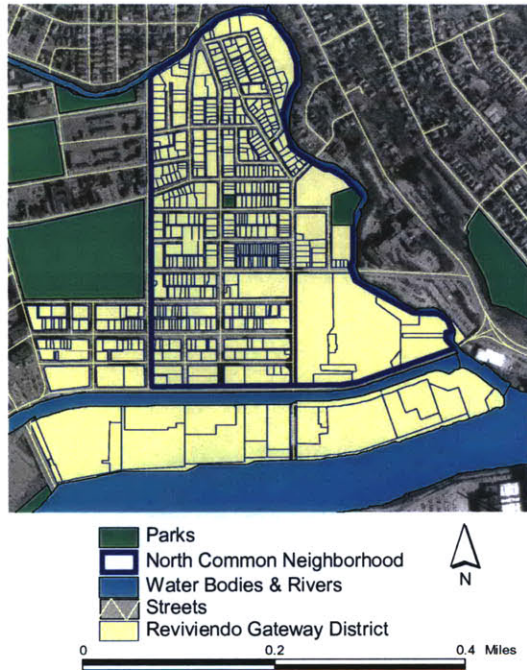
Reviviendo Gateway Initiative (RGI)

Both the first initial zoning fight and the *Reviviendo* effort are fundamentally connected to the *Reviviendo* Gateway Initiative. The North Common neighborhood, RPG, and the city's zoning politics are all involved in this $150 million public-private effort to bring about extensive environmental remediation, transportation and infrastructure improvements, and economic revitalization.

Building on the *Reviviendo* work, for the past two years LCW and Groundwork Lawrence[112] have been facilitating a communitywide process, involving hundreds of stakeholders such as public agencies, mill owners, downtown businesses, community organizations, and Lawrence residents, to create a common vision for revitalizing the *Reviviendo* Gateway District. The effort began when the North Common *Reviviendo* Planning Group (RPG) identified a number of neighborhood brownfields as a community priority.[113] The brownfields interest connected RPG to an ongoing remediation effort on two nearby sites by a California company, GenCorp, and the City of Lawrence. In the 1990s, some $50 million dollars of federal transportation dollars were combined with the project, dubbed at the time the "Lawrence Gateway Project." However, the effort was stalled and in need of federal appropriations to finish the work. Given that federal appropriations are political, this meant that the project needed a local constituency of supporters, which the California-based company and the City clearly did not have.

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[112] Groundwork Lawrence is a nonprofit organization dedicated to creating open and recreational space by empowering people, businesses and organizations to promote environmental, economic and social wellbeing. http://www.groundworklawrence.org/

[113] "Brownfields" refers to properties where the expansion, redevelopment, or reuse may be complicated by the presence of a hazardous materials or contaminants.

While the Lawrence Gateway Project partners were interested in RPG's endorsement to get the project moving, what they got was real, genuine community involvement. What ensued has been described by some as a "community hijacking" of a narrowly conceived transportation and remediation project, which is now the most ambitious neighborhood planning effort in the State. One clear indicator of the power of community in the Lawrence Gateway Project is in its new name: the *Reviviendo* Gateway Initiative (RGI). As illustrated in Figure 2.16, RGI has involved a two-year, sophisticated planning process of public meetings, focus groups, and steering committees. The vision extends well beyond infrastructure and environmental enhancements to include physical and economic improvements, family and community building, communications, and marketing. The culmination of this formal process was the *Final Report of the Reviviendo Gateway Steering Committee*, which includes 50 community members. The report provides rigorous analysis of challenges and opportunities, along with a series of specific investment strategies, action steps, and progress indicators.[114] In addition to the positive public and media response locally, in March, 2003 a delegation of *Reviviendo* supporters, including residents, city officials and business leaders, were invited by Congressman Marty Meehan to present the *Reviviendo* plan to state and federal officials in Washington, DC (see Appendix B for press highlights).

However, as consensus and excitement swirl around *Reviviendo*, the current zoning ordinance for the city – which has not been updated since 1946 – is a major obstacle for achieving the goals and visions of the plan (see sidebar). Therefore, the RGI Steering Committee is currently entrenched in a political

Figure 2.16:
RGI Two-Year Planning Process
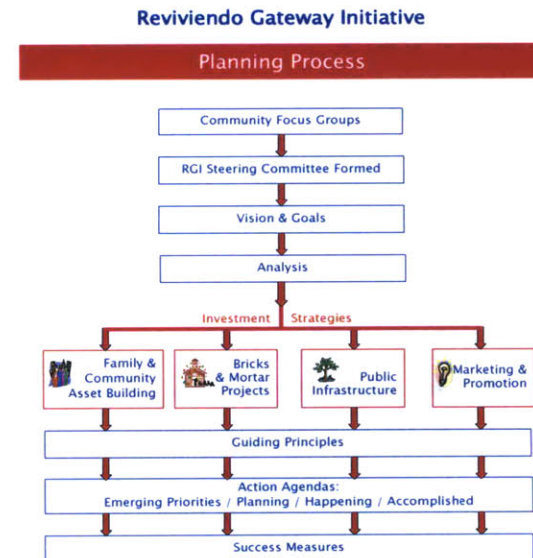
Source: *Reviviendo* Steering Committee

The redevelopment potential, as outlined in the vision statement, cannot be achieved given current zoning regulations. These regulations minimize reinvestment opportunities for both residential and commercial development by creating use, rehabilitation, and procedural barriers that effectively minimize property values, regardless of the regional access and historic attributes of the area.

John Connery, memorandum to RGI Steering Committee, July 22, 2002.

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[114] http://www.lawrencecommunityworks.org/rgireport.html

process to win a City Council vote on a proposed overlay zoning district for the *Reviviendo* Gateway District. The overlay district will not change the underlying zoning of the City, but provide a special zoning overlay for the Gateway area, in recognition of the ongoing planning efforts of local residents and the land use needs unique to the district. Given the enormity of the project, RGI has become the initial focus of a new and evolving partnership between LCW and MIT around the use of information technologies to support community development.

The MIT/Lawrence Partnership

Over the years, students and faculty at MIT's Department of Urban Studies and Planning (DUSP) have been academically engaged in the challenging urban issues in Lawrence. In a rough assessment of the number of studies and reports done over the years, I found more than 20 different MIT projects focused on Lawrence – a result both of independent student work (theses) and formal MIT coursework. Most of these studies were conducted within the last ten years, with the majority after 1998. As shown in Appendix C, these works cover a diverse set of topics including economic development, community asset building, racial and ethnic politics, and labor issues. While these efforts could appear deliberately coordinated, they have not been. Many of the papers offer the same standard recommendations.

While these reports and studies have been important learning experiences for MIT students, there is little evidence they are creating or supporting real change in Lawrence. Many of the reports do not reference past efforts and fail to build upon previous findings. Several Lawrence community members I interviewed for MIT coursework expressed frustration that the studies and reports seem to have

Standard Report Recommendations

- Improve and institutionalize coordination and communications between the city government, local business/industry and community-based organizations

- Conduct an inclusive citywide planning process to establish a vision and sense of shared priorities

- Implement a campaign to improve the city's image by building on positive aspects

- Direct some short-term, highly-visible efforts to address public concerns such as safety and parking

- Recognize and build on the central importance of the Latino community in the economic and cultural life of Lawrence

little impact in Lawrence.[115] Much this has to do with the nature of the challenges in Lawrence. Isolated reports and new faces each year are not effective tools for bringing about deep structural change.

However, what has happened in the course of these scattered efforts is a deep personal commitment to Lawrence by a number of students. There are now a handful of former DUSP students working in Lawrence in a variety of capacities. For example, the Director of Planning & Development at the City of Lawrence is a former DUSP student, the Neighborhood Planner, Director of Operations, Director of Resource Development, and Deputy Director of LCW are all DUSP alumni, along with the Associate Director and Director of Groundwork Lawrence.

One of the underlying objectives of the Lawrence Project is to support these deep personal commitments through student and faculty work, which move beyond short-term projects and nourish a broader vision for structural change around capacity, power, and opportunity in Lawrence. There is now synergy around the idea of harnessing personal, professional, and academic energy to support community development work in Lawrence. The partnership is structured to be a multiyear commitment to build an information infrastructure that will support community-led change and build on past efforts. Forming the partnership has been more of an incremental process than an overnight epiphany, and continues to this day. It began with the scattered efforts described above and has been enriched with the deep personal and professional commitment made by the number of students now working in Lawrence. The first serious discussions around creating a more potent partnership between LCW and MIT surfaced with a MIT course I participated in during the spring of

The three of us pretty much fell in a sort of enraged love with Lawrence. It was fascinating how many of the people we talked with remained stubbornly committed to the City in spite of the cynicism about local politics. There was a lot of anger about how Lawrence was portrayed in the media and perceived by surrounding towns – as a drug- and crime-ridden ghetto – and I think we began to feel that too, to feel that sense of, 'Hey, this isn't so bad. There's a lot of potential here.' And we began looking for ways to stay involved.

Former MIT students now working in Lawrence. Quote taken from a case study written about Lawrence for MIT DUSP course 11.200: Planning and Institutional Processes (2001).

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[115] Various interviews conducted in 2002 for two separate MIT courses.

2002: *11.524 Advanced GIS Project.* The course was taught by Assistant Professor Lorlene Hoyt, who had recently come to MIT from the University of Pennsylvania. With an extensive background in GIS and information technologies, Professor Hoyt had used these tools to examine housing and economic development issues in Philadelphia. Her research interests fit well with the ongoing discussions within LCW to use the power of information, community, and technology to support community building in Lawrence. The course produced a tremendous amount of enthusiasm among LCW staff, the students, and MIT faculty. That summer, I pursued an internship with LCW to help institutionalize the GIS and mapping work developed during the MIT course and later based two research papers for separate courses on aspects of Lawrence.

In addition to the enthusiasm among key individuals, there have been several key institutional factors – both within LCW and MIT – that have helped the partnership evolve from a loose idea to a long-term and sustained commitment to engage students, faculty, and the Lawrence community in using information technologies to support community development in Lawrence.

LCW

As previously described, LCW relies heavily on the use of data and information in all aspects of its work. While access to and use of reliable information is critical to community development efforts in Lawrence, acquiring accurate data (and metadata)[116] continues to pose significant challenges. LCW is fairly sophisticated in its use of GIS and mapping compared to most CDCs, but few

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[116] Metadata is data about data. The successful development, operation, and use of complex informational system heavily depend on metadata.

staff members are fluent with the software and the organization is only beginning to collect and store information about the city in a systematic way. The staff at LCW is committed to building its internal capacity to collect, store, analyze, and communicate data. As Traynor described, the organization sees information and communication as fundamental to fostering a dialogue among diverse interest and constructing a future vision for Lawrence as a city and a community. Information technology is also an important and necessary tool for building leadership and community capacity. Already LCW is demonstrating its commitment to building capacity and fluency around technology and information in many of its ongoing programs such as the Young Webmasters and Young Architects; the integration of technology-focused programming in the neighborhood-based school and the community center; and the establishment of a community planning and design center within LCW's offices. Another important institutional factor with LCW is the RGI project, which requires a tremendous amount of data analysis, sophisticated outreach and communication strategies, ongoing community engagement, and accountability. Confronting the scale of this project has underscored the immediacy for reliable data and innovative technologies for communicating information to a variety of audiences.

City of Lawrence

While the City's role is still in the early stages of development, there is some interest within the City of Lawrence for creating online access to city administrative data. While this vision has not been publicly articulated, the Mayor, the Director of Planning & Development, the Council President and one of the City's Assessors have all privately expressed interest in making data

accessible online to community members.[117]   Both the Director of Planning & Development and the GIS Specialist for the City have recently been involved in discussions about the Lawrence Project.   Given the City's important role in planning and data management, both MIT and LCW would like the City's formal involvement in the partnership to continue and grow.

MIT/DUSP

Within DUSP, there are now several faculty members with research interests in the use of information technologies to building community power and local capacity. Furthermore, discussion and planning around core curriculum changes within DUSP have led to several important changes with respect to the Lawrence Project.   Currently DUSP is divided into five program areas: *City Design and Development* (CDD); *Environmental Policy Group* (EPG); *Housing, Community and Economic Development* (HCED); *International Development and Regional Planning* (IDRP); and *Planning Support Systems* (PSS). In an effort to bridge and more effectively integrate learning among these groups, the Department has revised its core curriculum. In 2002, the computing requirement for all incoming Master's students was revised in terms of instruction, content, and format. What was a standard computing course, covering the basic use of spreadsheets, databases and GIS, has become a more comprehensive course which challenges students to think critically about various methods for representing place, ides, and actions through the power of information technologies.

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[117] Kristen Harol, conversation with author, summer, 2002; Tom Galligani, conversation with author, summer, 2002; Alex Vega, conversation with author, summer, 2002.

The second curriculum change is the *Practicum* requirement, effective for all incoming Master's students beginning in 2003. Each student will be required to take a *Practicum Workshop*, designed to engage students in communities with real clients around the complexities of planning. The course will provide students the opportunity to synthesize planning solutions within the constraints of real scenarios. Moreover, DUSP intends these courses to place students and faculty at the leading edge of planning practice by exploring innovative ways to integrate planning disciplines, work with communities, apply reflective practice, and connect theory and practice.[118]

In order for such a requirement to succeed, each year the Department must offer at least three *Practicum* courses to serve the diverse interests of MIT's planning students. During the internal committee process to plan for this new requirement, both faculty and students recognized the considerable effort necessary to achieve this goal. To support faculty in their efforts around developing *Practicum* courses, the Department is allocating several types of resources to *Practicum* faculty, including Graduate Research Assistants and fundraising support. In addition, faculty proposed that the new requirement serve the Department's broader research and academic agenda through the production of cutting-edge planning theories and products. One specific research agenda that is being developed within the *Housing, Community & Economic Development* group is to explore the way in which immigrants, minorities, and excluded groups build institutions, power, networks and alliances in cities and communities.[119]

DUSP *Practicum* Criteria:

- Expand on skills and concepts introduced in the MCP Core;

- Serve as the centerpiece for the Department's sustained involvement in communities;

- Bridge the broad range of interests and expertise among DUSP faculty and students by fostering interdisciplinary learning and cutting across program groups;

- Create a context for faculty members to develop research around practice; and

- Expanding relationships with funding organizations and other major planning organizations within and outside of MIT.

MIT DUSP, 2003

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[118] MIT Department of Urban Studies and Planning, internal memorandum, March 9, 2003.
[119] *Ibid.*

This new departmental mandate for place-based workshops and the academic interest in examining issues around power and social exclusion have been critical to gaining institutional support for the Lawrence Project, which now has a firm commitment from the Department. While much of the basic framework for the partnership is in place, specific content for each annual workshop will be developed over time. The planning process around these efforts is discussed in Chapter 4.

CHAPTER 3: RESEARCH METHODOLOGY

Figure 3.1: Thesis Process

Quantitative and Qualitative Research Strategies

- Document the evolution of ideas among key partners with respect to the short- and long-term vision for the Lawrence Project.

- Gain a general understanding of the extent to which web-based information systems are being used.

- Develop criteria for selecting a subset of online systems that will be useful in generating lessons for Lawrence.

- Examine specific characteristics (administration, use, content, design, functionality and community development application) of the selected online systems.

Research for this thesis was rather unique in that it did not occur in a vacuum, but as part of a vision for using technology to support community development efforts in Lawrence. Methods outlined in this paper extend beyond gathering and analyzing data; they document an iterative process among partners in constructing a common vision and strategies around the Lawrence Project. As illustrated in Figure 3.1, this thesis played a part in this process.

As discussed in Chapter 2, faculty at MIT and staff at Lawrence CommunityWorks are in the process of developing a long-term vision for the Lawrence Project. Moreover, technological advances and the devolution of

social policy present an opportunity and a need for the use of information technologies in community building efforts as discussed in Chapter 1. While a number of CDCs and other community development organizations are beginning to use more advanced methodologies, such as GIS mapping, many of these projects are short-term and dependent on the support of a research institution or data intermediary. The vision for the Lawrence Project is to move beyond the isolated, disconnected interventions of MIT students and faculty toward a long-term collaborative effort, firmly integrating information technologies into community development work in Lawrence.

One of the earliest ideas for the Lawrence Project was to build a web-based neighborhood information system. As discussed in Chapter 1, since the late 1990s, there have been several such efforts designed to empower communities through access to reliable neighborhood-level data. Therefore, in addition to documenting the context for the Lawrence Project (Chapters 1 and 2), I targeted two specific research areas to inform this effort:

1) *Lawrence Stakeholder Research.* Short- and long-term objectives of key partners engaged in the Lawrence Project.
2) *Neighborhood Information Systems.* Examining efforts of data intermediaries to empower communities through online neighborhood information systems.

Strategies related to these two research areas are discussed below, while activities and findings are presented in Chapter 4.

Stakeholder Research

In order to gain a better understanding of the short- and long-term goals among key stakeholders of the Lawrence Project, informal and formal discussions were

carried out. For the purpose of this thesis, stakeholders are defined as staff or faculty from the City of Lawrence, LCW, Groundwork Lawrence, and MIT. Figure 3.2 provides an estimate of the number of meetings conducted between January 2003 and May of 2003 related to the Lawrence Project.

MIT *Practicum* Meetings

As already described in Chapter 2, MIT's Department of Urban Studies and Planning made considerable changes to the core curriculum of its Master's program. As a Research Assistant to Professor Hoyt, I participated in more than a dozen internal Department meetings to plan for the new *Practicum* courses. My role was to support Professor Hoyt in establishing a formal partnership with the LCW and other Lawrence stakeholders and to assist in the development of a semester-long Lawrence workshop to be offered each year to students as a part of the *Practicum* requirement.[120]

Figure 3.2: Lawrence Project Meetings Jan., 2003 - May, 2003

Lawrence Project Meetings	Number
Internal MIT Meetings	
MIT Practicum Meetings	8
Spring 2003 Course Meetings	13
Lawrence/MIT Meetings (LCW, MIT, City of Lawrence, Groundwork Lawrence)	5
TOTAL	26

Advanced GIS Workshop, spring 2003

Related to the *Practicum* work, I assisted Professor Hoyt in the redesign of an existing MIT course, *11.524 Advanced GIS Workshop*, to specifically advance the goals and objectives of the Lawrence Project. Having participated in the course during the previous year, I worked with Professor Hoyt and the Lawrence partners to reformat the course to better serve the future multiyear endeavor in Lawrence.

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[120] The *Practicum* requirement was described in detail in Chapter 2.

Lawrence Partner Meetings

Over the course of three months, representatives from MIT, LCW, Groundwork Lawrence, and the City of Lawrence met periodically to brainstorm ideas and goals for the Lawrence-MIT partnership. These meetings involved key staff from all four organizations and focused on both long-term future visions and short-term projects. In particular, the team worked with Professor Hoyt to devise a work plan for the spring workshop under revision. These meetings generated important information to support the work of this thesis and the development of the Lawrence *Practicum* course.

Democratizing data refers to the idea of making important community data and information publicly available and in a format that is usable. Previously public statistics and local administrative data have typically been accessible to professionals or researchers.

Neighborhood Information Systems

The original idea for the Lawrence Project was to build a web-based neighborhood information system to support community development efforts in Lawrence. Therefore, one of the core areas of research for this thesis was to gain a better understanding about existing NIS efforts currently underway. However, there is no single definition or set of characteristics for these systems. As described in Chapter 1, NIS projects are a coordinated effort to collect, analyze, and communicate neighborhood-level data. These systems operate under a variety of monikers (neighborhood information systems, neighborhood indicator systems, community statistical systems) and differ greatly in use and application. Most NIS systems seek to democratize data and empower citizens to foster community change. The following four strategies were used to identify NIS efforts current in place:[121]

1) Review academic reports and publications

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[121] This thesis specifically focused on US-based NIS efforts.

2) Review practitioner reports and publications
3) Search the Internet using online search engines
4) Obtain information from experts involved in information technology and community development

The 27 sites identified through this process are presented in Chapter 5 and Appendix E.

Select NIS Subset

In order to gain useful information about the opportunities and challenges in using web-based information systems for community building, I developed criteria for purposively selecting a subset of these systems for further examination. The following criteria were used to select systems that would best serve to inform the Lawrence Project.

Available on the Web. Since one of the core objectives of the Lawrence Project is to create a web-based tool, the most basic criterion is for the system to have a significant web presence. Many of the NIS efforts provide more one-on-one data analysis support rather than serving information over the Internet.

Stated mission to empower communities. There are a number of web-based GIS systems that provide data and mapping tools, such as the Boston Atlas Project of the Boston Redevelopment Authority. However, an explicit goal in Lawrence is to build a system that goes beyond collecting and analyzing data to engage and empower citizens in community development. Therefore, only systems with missions to empower local communities were considered.

Small unit of geography. There are thousands of web-based systems of data and statistics currently available on the Web. However, only a handful of these efforts offer neighborhood-level data. Therefore, the subset was limited to those systems offering data at geographies smaller than the city-level (i.e. district, neighborhood, and census block group or parcel level).

Geographic/spatial data and mapping. While most systems provide data in the form of tables and charts, small numbers are beginning to incorporate dynamic and static GIS mapping applications. Given the mapping and GIS interest among the Lawrence partners, only systems with geographic data and some form of mapping were selected.

Examine NIS Subset

Of the five sites that were selected (see sidebar), seven broad categories of characteristics were examined to better understand the uses and applications of NIS: the types of organizations hosting these systems, the range of content, the design and functionality of the sites, the various strategies around system administration and maintenance, the particular ways these systems are supporting community development goals in neighborhoods, and future plans to improve or expand activities in the future.

Figure 3.3 presents data collected and the collection methods. Data categories are listed in rows while collection methods are listed in columns. There was an established hierarchy in the methods, moving from literature review, to web-tests, to personal interviews. The literature and web-searches were designed to gather as much initial information as possible, while remaining questions were reserved for personal contact with NIS staff. Web-tests were conducted to gain additional perspectives on the content and functionality of the selected sites.

Figure 3.3: NIS Data and Methods

Data Category	Literature	Web-test	Interview
Provider/Host			
Date of origination (Website)	x		
Type of organization/institution	x		
Reason for creating system	x		x
Key partners/collaborators	x		x
Use			
Primary users	x		x
How do community members find out about the site/updates?	x		x
Are training/services available to build community capacity to use/analyze data?	x		x
Content			
Was there a formal process to decide the data/content?	x		x
Is there a site map?		x	
Public statistic data		x	
Local administrative data		x	
Local knowledge/non-traditional data		x	
Other data types		x	
What is the smallest unit of analysis?		x	
Are there data definitions?		x	
Are multimedia elements incorporated?		x	
Are data predictive (as opposed to simply descriptive)?		x	
Are there metadata?		x	
How are liability and data accuracy issues handled?		x	x
What new content is currently being pursued?	x	x	x
Design & Functionality			
Is registration required?		x	
Are there special permissions for certain data?		x	
Can users query raw data (dynamic system)?		x	
Can users download data?		x	
Can users map data?		x	
Are there feedback loops? (means for requesting data or offering suggestings)		x	
What types of technological innovations are being pursued?	x		x
Administration			
How often are data updated/new data uploaded?	x		x
How many full-time positions are dedicated to the system?	x		x
What were the start-up costs of the system?	x		x
What are the ongoing system costs?	x		x
Who are the funders?	x	x	x
Primary Community Development Application			
Strategic planning/visioning	x		x
Organizing	x		x
Neighborhood planning/development	x		x
Community building/empowerment	x		x
Policy analysis/action	x		x
Tracking success/measuring change	x		x
Fundraising	x		x
Other	x		x
Successes/Shortcomings/Future			
What have been the biggest successes of the system?	x		x
What are the biggest shortcomings of the system?	x		x
Future?	x		x

Literature/Web Review

Several of the sites offer a fair amount about information and history on their website. In addition, the Urban Institute's National Neighborhood Indicators Partnership provides a wealth of information on their website about the goals, activities, and successes of these programs.[122] The more analytic of the sites (NKLA and Philadelphia NIS) have also been examined in both the academic and practitioner literature.

Web-tests

As already explained, Professor Hoyt offered a course specifically designed to advance the goals and objectives of the Lawrence Project. One of the initial tasks for students in the class was to familiarize themselves with the types of NIS currently in use. Professor Hoyt and I developed a simple survey to assess several features of each of the five selected sites. A copy of this evaluation is found in Appendix F, along with a list of evaluators. Evaluators were asked to rank 12 different features for each site on a scale on one to five. In addition, evaluators were asked to provide qualitative feedback regarding the strengths and weaknesses of each site, and to rank the type of user best served by each site.

The NIS projects were purposively selected based on the criteria outlined previously. Similarly, evaluators were not randomly selected. The seven evaluators were selected based on their involvement in the Lawrence Project (students and staff) or their interest in the use of web-based information tools to support community planning. Six out of the seven evaluators are affiliated with

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[122] http://www.urban.org/nnip/.

DUSP either as past, present, or future planning students. The seventh is an Architect, who is well-versed with technology and web-based applications. Therefore, information from the web evaluations may more accurately reflect how professionals interested in technology and planning evaluate existing NIS efforts, rather than how useful these sites may or may not be to Lawrence residents. However, many of the evaluators have had experience in neighborhood and community planning so their perspective is informed by community-based work. That said, given the limited and purposive sample of evaluators, it is important not to generalize the web-test findings to broader and more diverse populations.

Interviews

Telephone interviews were conducted with key staff from the NIS organizations. These interviews were semi-structured, open-ended conversations, lasting anywhere between 30 minutes to an hour. The data instrument presented in Figure 3.3 was used to structure these conversations. In most cases, data or information specialists were interviewed. However, follow-up emails were sent to additional staff such as Directors or training coordinators as necessary. Individuals reached by phone and email for the five sites are listed in the sidebar.

Baltimore Neighborhood Indicators Alliance

(Baltimore Neighborhood Indicators Alliance)
- Nidhi Tomar, GIS/Data Manager, phone interview
- Odette Ramos, Director, follow-up emails

Neighborhood Knowledge Los Angeles

(UCLA Advanced Policy Center)
- Bill Pitkin, Research Director, phone interview, follow-up email

Philadelphia Neighborhood Information Systems

(University of Pennsylvania Cartographic Modeling Lab)
- M.L. Wernecke, Managing Director, phone interview, follow-up email

The Providence Plan

(The Providence Plan)
- Jim Lucht, Community Planner and GIS Specialist, phone interview, follow-up email
- Katie Murray, Information Specialist, phone interview, follow-up email

Oaktown Datahouse

(Urban Strategies Council)
- Owusu Amoakohene, Research Analyst, phone interview

CHAPTER 4: RESEARCH FINDINGS

As outlined in Chapter 3, there were two targeted research strategies of this thesis to inform a nascent partnership between LCW and MIT: stakeholder research and NIS research. This chapter presents results specific to these two activities.

Stakeholder Research

Stakeholder research included meetings and conversations with key individuals representing the project partners: LCW, the City of Lawrence, Groundwork Lawrence, and MIT. Over the course of five months I attended meetings among and between these institutions to document initial goals and objectives for the Lawrence Project. The specific subjects of these meetings were varied, but all were related to the efforts to build a formal partnership and vision for the Lawrence Project.

Vision for the MIT-Lawrence Project

Demographic and asset mapping performed by the *11.524 Advanced GIS Project* workshop in the spring of 2002 inspired critical thinking within MIT and LCW about how information technologies could support community development in Lawrence. Chapter 2 discussed the ways in which the use of information and technology has been integral to LCW's community-building activities. However, like most community development organizations, the internal capacity and availability of resources to build a sophisticated web-based application is limited. And while MIT faculty and graduate students bring a range of technical and

research expertise, universities and research institutions have historically been unsuccessful at implementing community-based technology programs alone.[123] These projects are more successful if grounded in community-based organizations. To this end, a series of meeting were held between MIT faculty and Lawrence stakeholders to brainstorm future collaborations between MIT and the Lawrence community. Results from these conversations are discussed below. Appendix D provides minutes from two of these meetings.[124]

Critical questions that arose during several of the discussions:

- Who specifically will use the tool and for what purpose?

- How far should we take the capacity-building element – what is the right mix of in-house and community expertise?

- What are the short- and long-term goals for the project and how do we phase the project over time to meet these goals?

LCW, Groundwork Lawrence, City of Lawrence

LCW is interested in using information technologies as a tool for constructing a common vision for Lawrence's future. Reliable data about the past and present situation in Lawrence is critical to fostering a dialogue among diverse constituents. The organization's staff believes that the City lacks both leadership and a knowledge infrastructure. They describe their community-building efforts as "planning in the absence of power" and planning in a "vacuum of power." Reliable data that can be communicated and shared among diverse constituents is critical to building individual and collective power in Lawrence. LCW would like to develop a web-based tool to support and enhance the way it uses data and information for community development in Lawrence. In addition to building its own internal capacity to use data and maps, the organization sees information technologies as key to its resident-based incremental strategy of fostering productive leadership in Lawrence.

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[123] Seedco, *Opening the Door: Technology and the Development of University-Community Partnerships* (New York: Seedco, October, 2002).
http://www.seedco.org/whatsnew/pressrelease/pritems/techuni1102.pdf

[124] It is important to note that this process is only beginning and discussions will continue over the next few years regarding this effort.

The system should offer multiple levels of service and involvement – both internally (organizational management) and externally (outreach, planning, asset building). During the first project meeting all parties agreed that over the long-term, the tool must serve LCW's core activities: real estate development, family and asset building, and organizing and planning. The Young Professionals, in particular, are an important user group to engage in this effort. The sidebar summarizes several concrete projects, mentioned by LCW staff, which could serve as a focus for *Practicum* workshops in building a community information tool.

MIT/DUSP

MIT's Department of Urban Studies & Planning is interested in a multiyear undertaking to build a web-based knowledge infrastructure in Lawrence. The tool would be a *living* system, meaning that it will engage citizens and respond to real-time planning issues in Lawrence. The idea is to bring students, faculty, and the Lawrence community together to create the system through annual project-specific workshops over several years. Furthermore, as indicated in Chapter 2, there is specific interest among DUSP faculty in the *Housing, Community, and Economic Development* group to pursue a Department-focused research agenda around the way in which immigrants, minorities and excluded groups build institutions, power, networks, and alliances in cities and communities.

Beginning in January, I assisted Professors Lorlene Hoyt and Langley Keyes in developing a *Practicum* workshop course that could serve the community-based goals of the Lawrence partners, the research interests of Professor Hoyt, and the broader Departmental focus on social exclusion and power. The result is a new MIT course, *11.423 Information and Communication Technologies in Community Development*, which will be offered every spring. The course will engage faculty

Example Project Ideas:

Reviviendo Gateway Initiative
RGI requires immediate and ongoing data analysis, communication, and organizing efforts. With multiyear investment strategies, actions, and indicators, the critical need is an overlay zoning district for the Gateway District.

Trend Analysis
Given the dramatic transformations in Lawrence over the last few decades, maps to illustrate these changes would be useful for communicating these important socio-economic changes in Lawrence.

Indicators of Neighborhood Assets and Challenges

Conditions in Lawrence vary neighborhood by neighborhood. A neighborhood-level analysis of issues such as transportation, purchasing power, crime, instance of predatory lending would be helpful for targeting and measuring community development strategies.

and students in working with the Lawrence community to put planning theory into practice through the design, implementation, and evaluation of an information infrastructure that promotes democratic involvement and informs community development projects. In March, 2003, the course was approved by MIT to satisfy its new *Practicum* requirement, which was described in Chapter 2. Fulfilling the *Practicum* requirement is an important strategy for solidly institutionalizing faculty and student engagement over the years, and provides resources such as Research Assistants, fundraising support, and year-round research and development activities. It is the intention that graduate students will be providing ongoing research and support through work-study positions, summer internships, workshop courses, and thesis research.

Grounding the Vision: Advanced GIS Workshop, spring 2003

While the brainstorming sessions with the Lawrence partners about a long-term vision for the Lawrence Project are an important and ongoing part of this iterative process, more focused discussions concerning the seven-week *11.524 Advanced GIS Workshop* course helped to ground these more intangible ideas to a real, practical planning effort. Professor Hoyt had decided early on to redesign this course to better reflect the type of course the team envisioned for the *Practicum* workshop the following year. Specifically, she wanted the course to more fully engage students and the client in thinking about the way in which a web-based planning tool could support a contemporary planning issue in Lawrence. The team decided that students should work with LCW staff to design a web-based application to communicate the impact of a proposed *Reviviendo* Gateway District zoning overlay. LCW was interested in developing such a tool to help residents understand the context and implications of the overlay proposal.

As described in Chapter 2, the goals and investment strategies outlined in the RGI plan are futile without significant changes to the zoning in the district.[125]

In just seven weeks students, working with a technical consultant, have successfully launched the *Reviviendo* site, which provides general and fairly sophisticated information about the City, the *Reviviendo* Gateway Initiative, and the overlay zoning proposal. Residents can enter their address to verify if they are located in the district and learn about what the zoning overlay means to them as a homeowner, a small business owner, a mill owner, or an artist. The site incorporates census and parcel data to tell a story about the City through dynamic and static maps and queries. In addition, youth contributed to the site through a series of neighborhood photographs of places they like and disliked in the Gateway District, which are geo-referenced to a map of the area. There are also "placeholders" for future efforts to incorporate additional local knowledge and build a community forum.[126]

Neighborhood Information Systems

As illustrated in Chapter 1, there are a number of web-based information systems currently in use to support community development activities.[127] The emergence of data intermediaries – non-profits, research institutions or other entities – creating and maintaining neighborhood information systems is now widely

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[125] The *Reviviendo* Gateway Initiative has been the focus on an ongoing comprehensive community planning effort to revive an historic urban neighborhood in downtown Lawrence. The community goals and visions developed as part of this process are stymied by the current zoning ordinance for the area, so the community is proposing a zoning overlay district.

[126] www.reviviendo.org

[127] These efforts have also been advanced globally, but the scope of this thesis remained within the United States.

27 Identified NIS Efforts:

1. Baltimore Neighborhood Indicators Alliance
2. CAMConnect
3. Chicago NEWS
4. CityScope
5. Cleveland Area Network for Data Organizing (CAN DO)
6. Community Resource Network Data Center
7. Community Services Planning Council
8. DC Agenda
9. Georgia Tech Data & Policy Analysis Group
10. Greater New Orleans Community Data Center
11. Human Services Planning Alliance
12. MAP Milwaukee
13. Neighborhood Knowledge Los Angeles
14. New York City Open Accessible Space Information System Cooperative (OASIS)
15. NYPIRG Community Mapping Assistance Project (CMAP)
16. Philadelphia Neighborhood Information System
17. Richmond Neighborhood Indicators Project
18. Southeast Tennessee Information Service (SETNIS)
19. St. Paul Community GIS Consortium
20. The Boston Foundation Boston Community Building Network
21. The Minneapolis Neighborhood Information Systems
22. The Nonprofit Center of Milwaukee Neighborhood Data Center
23. The Piton Foundation
24. The Providence Plan
25. The Reinvestment Fund
26. United Way Community Service Council
27. Urban Strategies Council

discussed in the fields of technology, urban policy, and community development. The Urban Institute's NNIP, with the support of foundations such as the Annie E Casey Foundation, the Rockefeller Brothers, and the Ford Foundation, has been supporting a number of such initiatives across the United States.

As outlined in the methodology section of Chapter 3, an important strategy for informing the vision for the Lawrence Project was to examine current efforts to use data, mapping, and information for community development. As one of the primary goals for the Lawrence work is to establish a *knowledge infrastructure*, it was important to look beyond the limited uses of information technologies by community development institutions – as presented at the end of Chapter 1 – to the more expansive efforts of data intermediaries and other institutions currently collecting and maintaining neighborhood-level data for communities (NIS). Following the selection process outlined in Chapter 3, the extent of these NIS efforts was reviewed and five systems were selected for closer examination.

Extent of Neighborhood Information Systems

In reviewing the literature and through conversations with experts involved in the development of neighborhood information systems, I identified 27 separate efforts to collect, maintain, and distribute neighborhood data with the general intent to empower communities to bring about neighborhood change (see sidebar). Appendix E provides more detailed information about these 27 projects. Depending on the particular institutional framework, each project has its own particular focus and method. Most efforts have some form of data available on the Web; a handful of which currently offer interactive mapping capabilities. Many of the sites highlight an interest in building local capacity to use data and information for community development.

Of the 27 projects, 17 are housed by a non-profit, seven by a university, two by a foundation, and one by a public agency. However, many of the non-profits are actually collaborations of several organizations. Typically, a university or research-based institution is a key partner.

Before discussing the five selected sites, I will briefly highlight some of the ways that NIS efforts on the whole are using data to bring about positive changes in communities. Examples are drawn from a 1999 NNIP publication entitled *Stories: Using Information in Community Building and Local Policy.* As illustrated by the selected cases below, the use of maps and neighborhood data by these intermediaries and their partners have fostered community collaboration and policy changes at the local, and even statewide, level.

...the maps provided a compelling focus for the residents' experiences. Everyone knew about the problems on their block or in their neighborhood, but before that night no one could say with authority that vacant units were linked to higher crime rates. The effect that these maps had on the crowd was powerful

NNIP, 1999, 2.

In Atlanta, the Data and Policy Analysis Group (DAPA) has worked with residents to develop a parcel-level data system to support planning for redevelopment and reinvestment. Research efforts have identified tax delinquent properties, parcels for redevelopment, elderly property owners in jeopardy of losing their homes, and absentee property owners obstructing redevelopment efforts. The data are being used to support a resident planning process and have spurred several institutional and policy changes around housing, where community residents work with the city to serve as "Neighborhood Deputies." The role of these deputies is to shepherd the code violations process from the field.[128]

In Ohio, Case Western Reserve University's Center on Urban Poverty and Social Change (CUPSC) used geographic employment and wage data (ES202) and GIS to quantify the spatial mismatch between recipients of Aid to Families with

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[128] NNIP, 1999, 6.

Dependent Children (AFDC) vulnerable to losing benefits and projected employment opportunities. This research captured the attention of local media and policymakers, and led to state allocations of $10 million for transportation assistance in Cleveland's welfare-to-work efforts.[129]

In an effort to increase community access to public data and to help residents use reliable information to combat misinformation and the misuse of good information, The Piton Foundation in Denver, CO created an online data warehouse called *Neighborhood Facts.*[130] The bilingual website, developed in partnership with the city planning office, provides data in multiple formats including a searchable interactive database of more than 100 indicators. The site is being used in training sessions to build community capacity for using data and is the most frequently used data set by city agencies.[131]

Selected Neighborhood Information Systems: Five Cases

Five specific NIS sites were examined more closely to generate findings relevant to the work in Lawrence. As indicated in the Chapter 3, criteria used to select these sites were: a stated mission to empower communities, neighborhood-level data, a web-based system, and some interactive mapping capabilities. The five selected sites include:

1) The Baltimore Neighborhood Indicators Alliance (BNIA)
2) Neighborhood Knowledge Los Angeles (NKLA)
3) Philadelphia Neighborhood Information Systems (Philadelphia NIS)

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[129] *Ibid,* 24.

[130] http://www.piton.org/

[131] NNIP, 1999, 31-32.

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4) The Providence Plan

5) Urban Strategy Council's Oaktown Datahouse

Both NKLA and the Philadelphia NIS are widely believed to be the premier web-based systems. Figure 4.1 on the following two pages provides a summary of data collected in the five sites through reviewing available literature, online research, and phone and email conversations with staff members.

Figure 4.1: Summary of Selected NIS Sites

Site	Time Period	Mission	Catalyst	Institutional Setting	Staff Allocated	Funders	Primary Users
BNIA http://www.bnia.org	Planning in 1998, BNIA and website formed in 2000	Use accurate and accessible data and indicators to improve the quality of life in Baltimore City neighborhoods	Local Foundation and Grantmakers Association interested in developing neighborhood indicators	Nonprofit - alliance of foundations, nonprofits, government and neighborhood orgs.	One full-time staff, plus ~$2,000 consultant fees	Mostly Foundations: Kellogg, Rauch, St. Paul Companies	Community groups, foundations
NKLA http://nkla.sppsr.ucla.edu/	Initial community-based research activities in 1996, website in 1998	Provide tools for neighborhood residents, community organizations, and policymakers to access property and neighborhood data in support of community improvement	University-community partnership (HUD's COPC) to examine housing abandonment and disinvestment; grew into research to analyze citywide disinvestment	University - began as a partnership, temporarily housed in a nonprofit, but returned to UCLA	Not much, only maintenance of data	Past funders: TOP, FannieMae, Microsoft; little funding now	Public agencies, housing organizations, researchers
Philadelphia NIS http://cml.upenn.edu/nis/	Began in 1998, launched in 2000 in partnership with the City of Philadelphia	To facilitate analysis of properties, planning & evaluation of City-sponsored housing programs, and exchange planning information with community based organizations	Interest within Cartographic Modeling Lab (CML) to provide a data warehouse for community groups and agencies	University - Cartographic Modeling Lab (Graduate School of Fine Arts and the School of Social Work	Four full-time, two faculty, six students	William Penn Foundation, Pew Charitable Trust, Upon	Public agencies and community development organizations (50 agencies and some 150 orgs.)
Providence Plan http://www.providenceplan.org/	Organization founded in 1992; website launch in 1999	Organizational mission to comprehensively address fundamental causes of poverty and urban decline. Website is one program to compile local data and to help community-based organizations build capacity to use information	Initially worked with Brown University to compile neighborhood-level data to support community development work; led to a goal to make reliable data widely available	Nonprofit - joint initiative of the City, State and academic community	Two full-time staff, plus interns	RI Foundation, Annie E Casey Foundation, TOP funding ending	Public and state agencies, CDCs, Mayor's office, researchers, students
Oaktown Datahouse http://oakland.gisc.berkeley.edu/	Organization founded in 1987; website is new (no specific date)	Organizational mission to reduce persistent poverty and transform low-income neighborhoods. Website serves as an information portal to empower communities with access to accurate data for community building	Long history of using data and mapping tools to build capacity (has in-house data & mapping); online effort was spurred by Making Connections work	Nonprofit - data is managed by UC-Berkeley	Two at USC; UC-Berkeley manages the site	Hewlett Foundation, Annie E Casey Foundation	*Making Connections* partners will be primary users; not tracking use yet

Site	Community & User Engagement	Content & Functionality	Capacity Building & Training	Primary Community Development Use	Future Content & Technology
BNIA http://www.bnia.org	Committees of more than 30 orgs.; Healthy Neighborhoods initiative; online feedback; login required	Data by Community Statistical Areas in static and interactive table and map format; census, public statistics, wide range of local administrative data/indicators (no parcel data)	Quarterly trainings, workshops; online help/instruction; online education re: indicators; community resources	Strategic planning, community building, tracking success, resource allocation	Website redesign to feature Vital Signs report; neighborhood perceptions; civic indicators; neighborhood assets
NKLA http://nkla.sppsr.ucla.edu/	Online feedback; login required (did work much more in community partnerships)	Bilingual; Several geographies in interactive table and map format; minimal census data, detailed housing & property data, community organizations, local knowledge-multimedia & community collected data	Initial engagement with a number of targeted areas and organizations, funding for NKLA has dwindled, focus on NKCA	Neighborhood planning and redevelopment, policy action, NIS research	Recent release of NKCA has ability to upload & download data; discussing predictive techniques and use as a tool for infill dev.
Philadelphia NIS http://cml.upenn.edu/nis/	Iterative process with city to develop site; online feedback; survey of 450 accounts; login required for parcel-level data	Three aspects: ParcelBase, NeighborhoodBase and MuralBase. Eight levels of geography in interactive table and map forma (parcel restricted); census, detailed housing and property data, geocoded photo database of murals	Focus in the beginning on public sector; new outreach effort with a diverse mix of community groups (half-time outreach staff person);	Neighborhood planning and redevelopment, policy action, grant writing	Moving beyond "can you build the system" to "what is the value of the data"; trend analysis; ; developing user-defined geographies for queries; data download
Providence Plan http://www.providenceplan.org/	List serve; targeted efforts in *Making Connections* sites, new outreach campaign with data partners; online feedback, opposed to logins	Community services database, community postings (list serve), static neighborhood profiles, statewide census mapping; interactive mapping of property data, local administrative data, community assets	Beginning capacity building in 4 communities (data, technology, indicators); partnership with libraries to train staff on web tools	Policy action, grant writing, community building (future)	New mapping interface; virtual property cards in ASP; getting direct line to city data; predictive uses with property and health data re: lead poisoning, ProvStat initiative
Oaktown Datahouse http://oakland.gisc.berkeley.edu/	Targeted efforts in two *Making Connections* neighborhoods, monthly steering committee meetings are part of this work	Census tract data is the primary analytic tool, although there is one layer of vacant lots (but no ability to get other property data). Users are able to download census data and see static maps. Site offers a number of context layers such as community assets and public infrastructure.	Training of close to 40 public agency staff, beginning to work with community leaders and residents on understanding/using data	Neighborhood planning and redevelopment, community building	Site design in progress

Web-tests

12 Evaluated Website Features:

1. Use of a data dictionary

2. Ability to retrieve parcel data

3. Ability to map parcel data

4. Ability to retrieve census data

5. Ability to map census data

6. Use of legends and labels

7. Ability to control query

8. Ability to control presentation

9. Use of local knowledge or non-traditional data

10. Overall aesthetics

11. Overall site organization

12. Ability to communicate mission and history

As described in the methodology, seven individuals independently reviewed and evaluated the five NIS websites on number of features. A copy of the evaluation used for the five sites is found in Appendix F. As part of the web-test exercise, evaluators were asked to familiarize themselves with the five sites. Once they felt comfortable with the context and functionality of each site, evaluators then ranked 12 specific features of the site on a scale on one to five. They were also asked to provide qualitative feedback regarding the strengths and weaknesses of each site and rank types of users best served by the site. Unfortunately, results from this last ranking were discarded due to varying methodologies used to complete that section of the evaluation.[132] A summary of the data, organized by evaluator and site, is located in Appendix G. Each evaluator spent anywhere from 5 to 8 hours completing the evaluations.

The following provides an analysis of the web-test results in terms of the overall preference for the five NIS sites, the specific features most liked and disliked by evaluators, and a general summary of each site's strengths and weaknesses.

<u>Overall Preference</u>

In order to determine the overall preference ranking of the five sites by each evaluator, I used a basic index measure, where each of the 12 features equaled 1/12 of an overall *preference score*. For example, to determine the preference score of NKLA for Evaluator 1, the values for each of the 12 features are averaged, yielding an overall score. Figure 4.2 below provides the preference

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[132] Four of the evaluators ordered the four "user groups" on a scale of 1 to 4, while three of the evaluators ranked each "user group" on a scale of 1 to 4, independent of the other three "user groups" (leading to cases where all four users could receive a 4 for a particular site).

score for each site given by each evaluator, ranging from the most preferred to the least preferred site. In the case where two sites received the same preference score by the same evaluator, the sites are listed alphabetically. The Providence Plan was not reviewed by all seven evaluators, as Evaluator 5 was completing site evaluations from overseas and experienced technical difficulties with that particular site.

Figure 4.2: Overall Preference Scores

Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Evaluator 5	Evaluator 6	Evaluator 7
Philadelphia NIS 3.83	BNIA 3.33	Philadelphia NIS 3.50	Providence Plan 3.67	BNIA 4.83	BNIA 3.92	BNIA 3.33
BNIA 3.50	Philadelphia NIS 3.17	BNIA 3.17	Philadelphia NIS 3.25	Philadelphia NIS 3.75	Philadelphia NIS 3.42	Philadelphia NIS 3.33
NKLA 3.33	NKLA 3.08	NKLA 3.00	NKLA 3.00	NKLA 3.33	NKLA 3.08	NKLA 2.92
Providence Plan 2.33	Providence Plan 2.41	Providence Plan 3.00	BNIA 2.75	Providence Plan 2.83	Oaktown Datahouse 2.25	Providence Plan 2.67
Oaktown Datahouse 1.83	Oaktown Datahouse 1.67	Oaktown Datahouse 1.83	Oaktown Datahouse 1.83	Oaktown Datahouse 1.92	**NO DATA**	Oaktown Datahouse 2.41

As indicated in Figure 4.2, BNIA and Philadelphia NIS were the preferred sites among the five evaluators. Philadelphia NIS fell into the top two positions for all seven evaluators. For six out of the seven evaluators, NKLA fell into the third position and for the most part, The Providence Plan fell into fourth place. All of the evaluators were in agreement that Oaktown Datahouse was the least useful site.

Figure 4.3: Median & Mean Preference Scores

Figure 4.3 graphs the median and mean scores for the five websites (derived from the preference scores). As described in the next section, the median is a more reliable measure in that it is less sensitive to outliers. Figure 4.3 shows that while the difference are minimal, both Oaktown Datahouse and BNIA (and to some degree Philadelphia NIS) receive slightly higher preference scores with the mean. This would result from one or two evaluators giving a particular site a much higher ranking than the other evaluators.
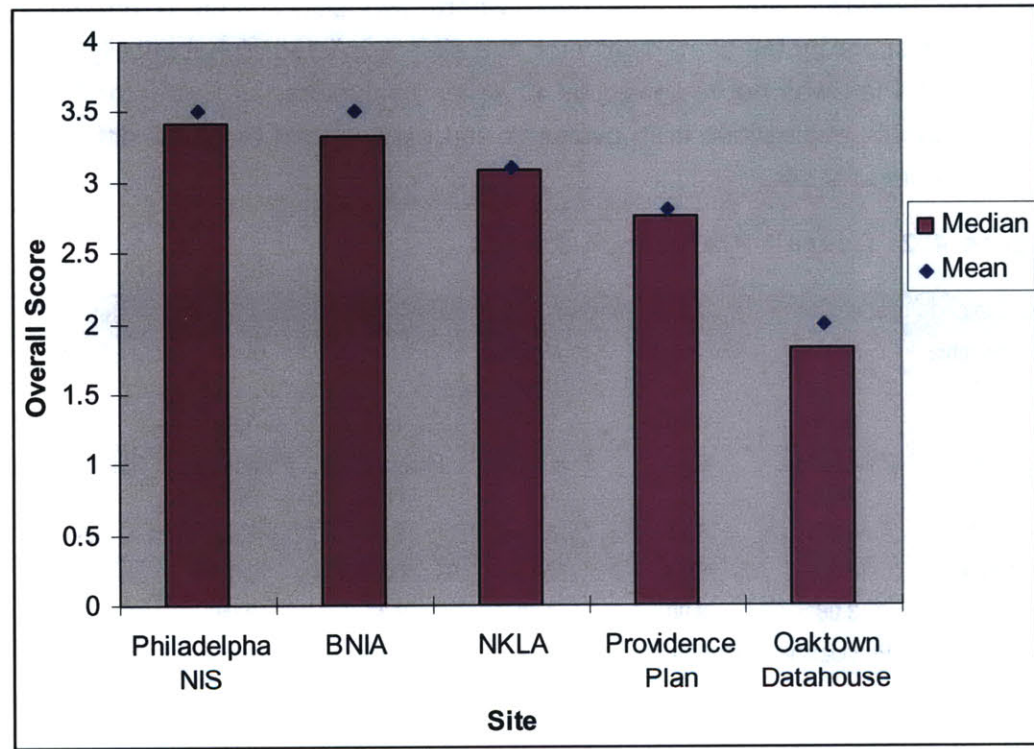
Using the mean score Philadelphia NIS and BNIA both receive 3.5, while using the median moves Philadelphia NIS into the lead. This is primarily due to the high score of 4.83 given to BNIA by Evaluator 5. It is interesting to note that the two top choices, Philadelphia NIS and BNIA, are both sites that do not offer parcel-level data to the general user, therefore these two sites received the lowest possible score from all seven evaluators for two of the 12 categories: "ability to retrieve parcel data" and "ability to map parcel data". Had these sites offered some parcel-based information, it is likely that they would have more

dramatically trumped the other three sites (all of which did offer some parcel data).

Feature Preferences

Understanding the overall ranking of the five sites is interesting, but not as useful for determining what specific features the evaluators liked and disliked about the sites. Therefore, it will be helpful to look at how the sites compared across features.

Given the small sample size, it is not possible to perform statistical analysis in order to examine these issues. In order to understand the specific site features preferred by evaluators, the median score (based on the seven evaluator ratings)[133] for the 12 features was computed separately for each of the five sites. The median is used over the mean because there were several cases where one or two evaluators provided significantly different responses than the rest of the group. For example, one evaluator may not have been able to locate a specific function on a site, thereby giving it a low ranking, while the other evaluators were able to locate that feature, and provided considerably higher rankings. Therefore, because the median is less sensitive to outliers, results are presented in terms of the median values. Figure 4.4 provides a graphical representation of the median scores for each of the five sites by feature type. Appendix G provides a comparison of both the mean and median for each of the 12 features by site. Following Figure 4.4 is a brief summary of the web-tests for each of the five sites, following by a more general analysis that incorporates information collected though the web-tests, literature/web reviews and personal interviews.

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[133] Although, as indicated earlier, The Providence Plan was only evaluated by six individuals.

Figure 4.4: Median Score for the 12 Features

In looking at Figure 4.4, most of the sites received higher scores in terms of aesthetics, organization, and the use of legends/labels. However, with respect to the other features, there is much more variation. Looking at the graph, it appears like the functional- and content-based elements of the sites experience the most variation in terms of scores. This could be that the site does not offer certain information or that the ability for a user to control that information is particularly confusing or straightforward. For example, several of the sites did not offer parcel-level data to general users so these sites received much lower scores for the parcel data-related questions.
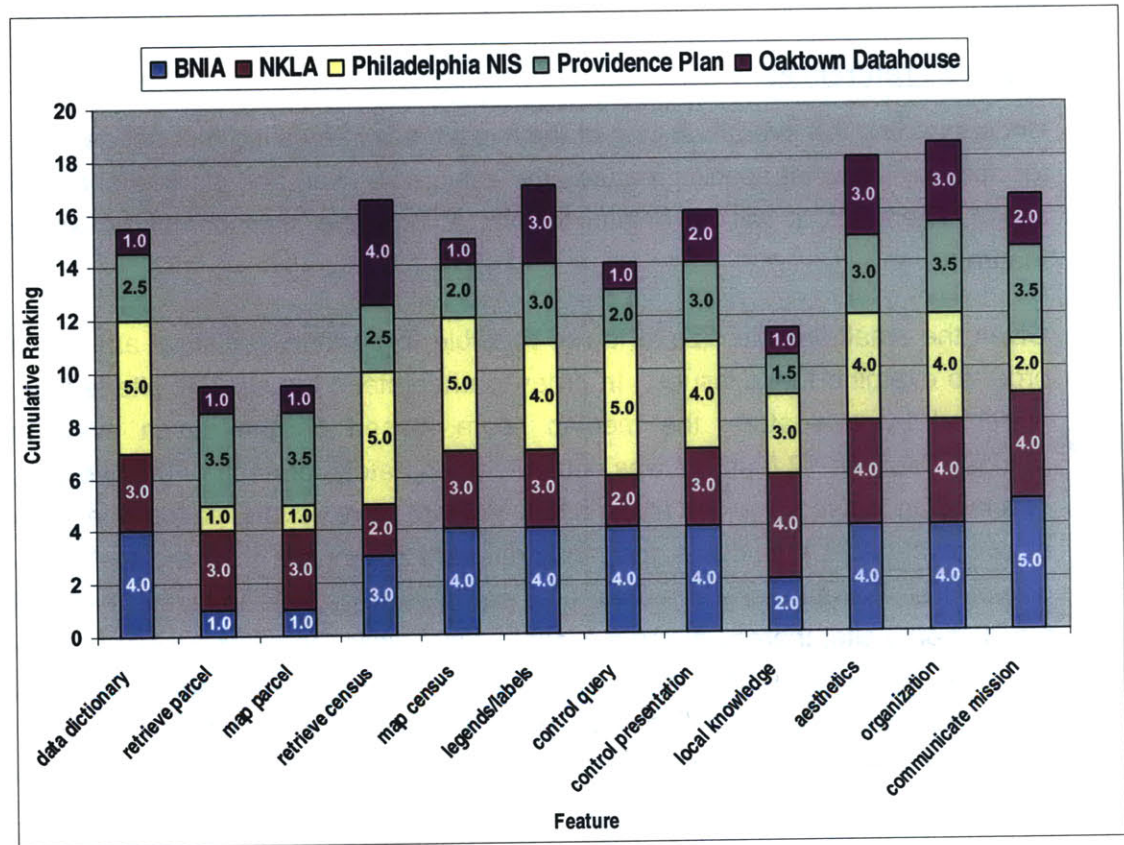
BNIA

BNIA received fairly high marks for its ability to communicate its history and mission, overall aesthetics, general organization, and flexibility in controlling the presentation and display of information. As indicated by the low scores for parcel data functions, this site does not offer parcel-level data. Most of the qualitative comments offered by evaluators praised this site for its robust homepage, the diversity of data types (including health, education and environmental data), training and tutorial information, and use of neighborhood profiles and indicators. The biggest complaints centered on the lack of parcel-level data and general site organization.

NKLA

NKLA received fairly even scores (around 3) for its data retrieval and mapping capabilities. The site outpaced the others in its incorporation of local knowledge through its use of asset mapping: I AM LA, a community-based asset mapping project, and Living Independently in Los Angeles (LILA), which works with persons with disabilities to map local independent living resources. Similar to BNIA, evaluators gave the site high marks in communicating its mission, overall site organization, and aesthetics. In terms of content and functionality, much of the praise for the site centered on its rich and detailed property and housing data, its address locator function, its use of local knowledge, and its bilingual capabilities. However, evaluators gave the site low scores for its limited census data and lack-of-ease in controlling queries, and complained that the site was too narrowly focused on property-level data.

Philadelphia NIS

Philadelphia NIS appears to be the favored site by most of the evaluators. It received high marks in all but four categories. Because evaluators were not able

to access the site's restricted parcel-level data, scores for parcel-related categories were low. Evaluators also gave low marks for its lack of local knowledge and poor strategy for communicating mission and history. It is important to note that that there was an even split among the evaluators on the local knowledge question. I suspect this has to do with if the evaluator defined the mural element of the site as local knowledge and whether they even visited that section of the site, which is not highly promoted from the main NeighborhoodBase area. Qualitatively, most evaluators commented that they liked the site's data offerings and flexible querying and mapping capabilities. Several specifically mentioned the mural feature and most said the site was well organized with good tutorials. The complaints were varied, ranging from functional issues to the fact that the site may be somewhat intimidating to non-professionals.

Providence Plan

The Providence Plan received its highest marks for its parcel-based functions, ability to communicate its mission, and overall organization. It received fairly mediocre marks for the remaining features. Many evaluators commented that the prepared static maps of neighborhood profiles were useful, especially for users less fluent with data querying and mapping. Several evaluators complained that the querying and mapping functions were confusing and limited, and that the interactive mapper had long load times.

Oaktown Datahouse

All seven evaluators found the Oakland site the least impressive. Aside from "retrieving census data," the site ranked lowest in all categories. While most of the positive qualitative comments cited the sites straightforward and easy layout, evaluators complained about limited data, the inability to map census data, and

the confusing layout of separate mapping applications for three different geographies (citywide and two targeted neighborhoods).

General Analysis

For the most part, the five NIS efforts have spent the last several years focused on the challenging task of securing data partners and building the system; most sites seem to be still working out how the data can be used and by whom. Philadelphia NIS and NKLA have been using their rich property datasets to experiment with predictive techniques around housing abandonment and disinvestment, but for the most part, all five sites are primarily descriptive. As one interviewee from Philadelphia NIS explained, "the challenge is moving beyond 'can you build the system' to 'what is the value of the data'."[134]

The following section combines results from the web-tests, with information gleaned from the literature/web reviews and interviews. Results are presented by the following general themes: Institutional Context & Administration, Community Engagement & Capacity Building, and Content, Functionality, and Application.

Institutional Context & Administration

The successful development and maintenance of the sites have been a significant challenge and required strategic partnering, technical expertise, a substantial institutional commitment, and external funding. Taken together, the Department of Commerce's Technology Opportunities Program (TOP) and the

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[134] M.L. Wernecke, conversation with author, March, 19, 2003.

Annie E Casey Foundation's *Making Connections* initiative have been supporting much of the initial development of these NIS efforts.

Role of local research institutions. While only two of the projects are housed in an academic institution, all but the BNIA have, or have had, key involvement from a research institution. UC-Berkeley currently manages the Oaktown Datahouse, while Brown University initially oversaw the data development of The Providence Plan. BNIA is the only nonprofit that created and maintains its site without support from a research institution. One of the ways that BNIA is able to manage data and other aspects of the site with only one dedicated staff person is through its *Data Providers Work Group,* which includes 16 different organizations that provide data to BNIA. This year marked the first major milestone in that all of the data updates were provided to the BNIA ready to upload, without any data cleansing needed.

Strong public sector relationships. All five sites have developed formal partnerships with city, regional, or state agencies to access data and support public sector activities. Developing these relationships has not come easy. Both timing and the local political administration have been critical to successful data sharing and cooperation. Philadelphia NIS struggled for over a year to win the trust and support of the City in its effort gain access to local datasets. In Providence, even though the Providence Plan was initially formed as a joint public-private initiative, the previous city administration was not committed to creating and maintaining accessible public data. However, the new administration is eager to use city data to drive good government in its new

ProvStat initiative (modeled after a similar program in Baltimore),[135] and the Providence Plan is becoming a key partner in gathering and analyzing neighborhood-level data to monitor city services and policy success. NKLA was involved in a similar effort around reforming the way housing code violations were handled in the City, and BNIA's *Vital Stats* are a comprehensive set of indicators used by public, private, and community entities to develop investment strategies and monitor success. The City of Baltimore is widely represented on BNIA's various steering committees, and serves as its primary data partner. Similarly, various city agencies are important data partners for Philadelphia NIS and NKLA.

Top-down versus bottom-up. While the five projects are all focused on neighborhood issues, for the most part, the projects have not engaged communities in their development. NKLA was initially inspired by a community-university partnership, but has evolved more towards academic- and research-oriented uses to predict abandonment and disinvestment. While community use and access were always a primary concern of NKLA, most content and functionality decisions were made internally. In response to community complaints that the site relied too heavily on deficits, NKLA worked with target communities to develop I AM LA (an asset-based approach to community data) and added a layer of community assets. Similarly, decisions around data and site development in Providence and Philadelphia were made with little public input or engagement. The notable exception is BNIA, which undertook a two-year planning process to develop a range of indicators for measuring and tracking neighborhood health. This collaboration has been institutionalized in a

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[135] Gregory Smith, "Consultant Hired to Track City's Efficiency," *The Providence Journal*, Metro Section, March 14, 2003.

formal organizational structure of five committees for various aspects of BNIA's work (Coordinating Committee, Vital Signs Steering Committee, Data Providers Work Group, Technical Assistance and Training Work Group and Access Points). This greater public involvement is reflected in BNIA's broad range of data, including health, education, environment, employment and youth participation.

Community Engagement & Capacity Building

Engaging community organizations, leaders and residents is a fundamental goal of the NIS systems. However, most of the NIS programs have not been effectively engaging community-based organizations and residents.

Most sites indicate that community engagement is their biggest shortcoming. As previously described, the majority of the sites were originally designed without community or user input. There are two challenges these sites face: 1) value and usefulness, and 2) outreach and marketing. *The community* is not easily defined. Understanding diverse data and information interests requires a deliberate process. It appears that few of the NIS efforts have taken any significant steps in this direction. While the Web offers a wonderful tool for serving multiple constituents, success is based on the sites ability to serve real needs and interests. Marketing and outreach are also important. Targeted outreach through key community institutions and media is critical. To this end, most of the sites are now beginning to work with public libraries and are promoting the sites through community postings and listservs to more aggressively reach out to less likely users.

Community-based training is a high priority for several sites. Training is needed for both the mechanical and analytical aspects of the sites. It was clear from the website comments that the content, mechanics, and analytic capabilities of many

of these sites are not intuitive or self-evident. Some of the querying and mapping functions are confusing and complicated. While several of the sites provide good online tutorials around mechanics, only a few offer information and recommendations about data analysis. BNIA boasts a nice section on developing and using indicators and NKLA offers several helpful tools for defining queries and asking data questions. Phone conversations with NIS staff indicate that community-based trainings are critical to increasing the use and value of the sites. Several staff indicated that while training is resource intensive, it makes a significant difference in the way people interact with the site. Providence, Philadelphia, and Baltimore are all pursuing partnerships with public libraries to familiarize library staff with the websites. BNIA estimates that it will be offering around 20 community-based trainings on developing indicators and using the website. The two sites involved with the Annie E Casey Foundation's *Making Connections* program (Oakland and Providence) are developing specific leadership programs in target communities to build the capacity of local leaders to use data for community development.[136] Historically, NKLA has been the most aggressive in terms of community-based trainings (offering 200 to community members and the public sector employees between 1999 and 2002).[137] However, with most of its resources now being directed to a new statewide

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[136] One of the core strategies of the *Making Connections* program is building local capacity in targeted neighborhoods to gather and analyze data in an effort to know more about the assets and challenges of the community. http://www.aecf.org/initiatives/mc/.

[137] NKLA, "Final Project Report to TOP by the UCLA Advanced Policy Institute," October 1, 1998 – September 30, 2001, Grant # 06-60-98047, http://nkla.ucla.edu/help/translator/FinalTOPReport_API.pdf.

information system, NKCA,[138] the NKLA work is being scaled back to primarily data maintenance.

Content, Functionality, and Application

The content and functionality of the sites have a direct impact on both the types of users and the community development application. In the most general sense, there appear to be two typologies of the five sites: 1) the analytic-research approach, and 2) the descriptive community-information approach.

NKLA and Philadelphia NIS fall into the first category of the analytic-research approach. Both evolved from a specific mission to analyze and predict neighborhood disinvestment with a rich set of property indicators. These sites were developed within an academic setting and intended to support policy-based research. This is evident in the rich and powerful property and housing datasets maintained by the two sites. Similarly, these sites offer very flexible querying and mapping functions, which provide the user greater choice in determining how data will be extracted and represented – in tables, charts and maps.

Since their inception, both NKLA and Philadelphia NIS have made deliberate and impressive attempts to engage a broader community in the site. NKLA worked with specific groups (targeted neighborhoods and persons with disabilities) to incorporate local knowledge and community assets into the site. Moreover, the NKLA site was developed to be bilingual and accessible to Spanish speakers.[139] Philadelphia NIS has also expanded the information offered through its site to

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[138] NKCA is UCLA's Advanced Policy Institutes recent effort to develop a state-wide NIS in California. http://www.nkca.ucla.edu/.

[139] Although during a phone conversation, Bill Pitkin of NKLA indicated that the use of the Spanish site is fairly low.

service a larger population, including more neighborhood-based data and a unique database of the hundreds of murals in the city. Philadelphia NIS is looking to expand on these community assets to include community gardens and brownfield sites. With most users representing government employees and nonprofit staff, these systems have clearly been added value to neighborhood development and public policy, but appear to be less successful at directly empowering residents and non-professionals.

The second group of sites, which includes BNIA, the Providence Plan, and Oaktown Datahouse, appear to be more broadly focused on communities and neighborhoods. BNIA and the Providence Plan feature informative main pages, with community resources, technical assistance, community-based projects, and general neighborhood information. It is very hard to discuss Oaktown Datahouse's work, as the site is still in development and I was not able to complete interviews with staff. From what I have learned, the development of the Oaktown Datahouse site directly grew out of the *Making Connections* in two targeted Oakland neighborhoods. Moreover, the Urban Strategies Council has been engaged in community building activities in the Oakland area since 1987 – the site is clearly building upon existing community-based programs and activities. Taken as a whole, the principal users of these systems have been community organizations, foundations, and public employees, primarily for strategic planning, resource allocation, neighborhood monitoring, and community building. Of the three sites, the Providence Plan seems to have the weakest connection to communities, although this is changing with the *Making Connections* work.

In summary, it appears that the five NIS efforts are succeeding on a number of levels. They are providing access to community-based information that has

historically been difficult to obtain. The projects have changed the way city agencies, research institutions, CBOs, and foundations collaborate on community issues. BNIA in particular has brought together diverse interests to establish criteria for intervening and monitoring community change. NKLA and the Providence Plan have used their systems to impact policy around housing issues. NIS clearly offers important tools for policy analysis and intervention. However, in terms of building the skills, information literacy, and technological fluency of diverse segments of the population, the sites appear to fall short. Such efforts require deeper partnerships with education- and community-based organizations. NKLA seems to have been most successful through its bilingual site, targeted I AM LA projects, and its recent partnership with persons with disabilities. However, without an ongoing commitment to targeted efforts, these successes may not be sustained into the future.

CHAPTER 5: LESSONS FOR LAWRENCE

The ability to collect, analyze and communicate information is paramount in today's knowledge-driven economy. In this thesis, I have illustrated that information technologies are a powerful and necessary tool for community development activities. Advances in technology, the devolution of social policy down to local agencies, and community-building efforts in neighborhoods underscore the importance of information technologies in *planning, organizing* and *advocating* for positive community change. Chapter 1 provides a number of examples of community development organizations partnering with research institutions or other data intermediaries to use information technologies to this end. Moreover, the proliferation of NIS efforts has been instrumental in providing citizens with access to historically inaccessible data through interactive web-based applications.

However, few, if any, of these efforts are using information technologies to support *capacity-* and *skill-building*. Today's information-driven economy places a premium on what are being called the new basic skills: the ability to solve complex problems, think critically, communicate effectively and use computers and other technology.[140] Therefore, building the information and technology skills of people in low-income communities is essential for preparing individuals to fully participate in today's economy and fostering effective community leadership. Information technologies are not only essential to developing and implementing sound policy, but building the skills and capacity of individuals in communities.

Uses of IT by Community Development Institutions (Revisited)

- Documenting, analyzing and monitoring neighborhood change

- Identifying development opportunities

- Building community capacity and support systems

- Organizing and advocating for policy change

- Tracking program success and sharing outcomes

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[140] Richard Murnane and Frank Levy, *Teaching the New Basic Skills* (The Free Press, 1996).

Framework: A Network of Capacity Building

The City of Lawrence presents both a need and an opportunity for harnessing the power of information technologies for positive community change.[141] The issues around poverty, education, literacy, and unemployment that were described in Chapter 2 illustrate a devastating need for deep structural change in Lawrence. At the same time, the foundation for change is underway. Along with a number of community-based organizations and leaders, Lawrence CommunityWorks is working to build a network of collective action in Lawrence. This strong community foundation is essential for information technologies to truly contribute to community empowerment and sustained change.

The Lawrence Project should support this *network* of community building efforts. Bill Traynor has already described the work of LCW as a network of formal and informal learning and support (see sidebar). Community developers are widely using the concept of *networks* in discussions around the creation of social capital – the norms and lines of interactions that foster individual and collective action. Given the complex set of community development challenges in Lawrence, it is critical that efforts are multidimensional; they must aim to build individual, leadership, institutional, and community capacity. Individual capacity is the foundation for developing effective community leaders, organizations, and institutions that can collectively work to advance community goals and strategies.

The LCW Network

...to build a growing network of Lawrencians who are engaged in building family and community assets, providing each other with mutual support, building leadership skills, and engaging in collective action to advance an agenda for change.

Bill Traynor, *The Case for Family Asset Building as an Economic Development and Empowerment Strategy for Lawrence, MA* (February, 2003), 5.

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[141] In this thesis, positive community change refers generally to a variety of improvements in the community ranging from physical to socio-economic to political.

Individual Capacity

The capacity to use information and technology is critical for all aspects of today's society – at home, school, and work. With some of the lowest levels of employment, literacy, educational attainment, and English-speaking abilities in the state, there is a fundamental need to build information literacy and technological fluency in Lawrence. The traditional web-based NIS model or the short-term university-community project is not enough. While these approaches have provided powerful community development tools in neighborhoods, they seem to fall short of reaching residents most in need of skills and opportunities. In addition to online tutorials built into the web application, the Lawrence Project must involve aggressive outreach and training efforts around using community data, information, and technology.

As Dr. Steyaert describes, practitioners and policymakers involved in efforts to bridge the digital divide see information literacy and technological fluency as the next frontier for digital inclusion. Access and mechanical know-how is no longer enough; individuals must have the necessary skills to translate information into strategic action. The Lawrence work must explicitly promote skill building through a number of channels such as innovative online tutorials, formal training, and informal social and community learning. Recent work in the UK suggests that information technologies offer new strategies for reaching and empowering individuals who have been failed by the education system. Community development organizations in the UK have seen positive results in addressing skill levels and low self-esteem, as these activities are not associated with

Analytic & Descriptive Capabilities

Related to the issue of reaching multiple users, the web-tests indicate a preference for powerful querying and mapping capabilities and stock community profiles in static map, table, or chart format. Many of the NIS interviewees indicated that community-based organizations are using the static maps and profiles to summarize community characteristics for grant applications. These static data elements are an important consideration in Lawrence for engaging diverse users with varying skill-levels and interests. At the same time, the Philadelphia NIS and NKLA sites illustrate a movement in the direction of *moving beyond 'can you build the system' to 'what is the value of the data.'* The Lawrence Project should capitalize on MIT's resources to push the analytic and predictive potential of IT, yet serve the need and interest of Lawrence residents.

previous failure and they support the creation of social networks and social capital.[142]

Leadership Capacity

Both Bill Traynor and the Mt. Auburn Associates report on third-tier cities highlight a fundamental need to build civic leadership in Lawrence. While LCW has been working with Lawrence residents since 1999, developing effective community and civic leaders takes time. Through its Pew Civic Entrepreneur Initiative in ten communities, the Pew Partnership found that civic leadership is a "complex process that takes patience and passion and an appreciation for resources that are often overlooked."[143] Leadership building extends beyond individual skills to group skills and relations building.[144] The Pew initiative also found that some of the biggest barriers to achieving effective civic leadership were due to race and class divides. Given the tensions in Lawrence over ethnicity and identity, it is essential that information technologies be used to help bridge these divides and foster a dialogue for building a common understanding and vision for the future of Lawrence.

Organizational and Institutional Capacity

Related to civic leadership is the idea of having strong institutions and organizations committed to the social and economic improvement of a place. In order to deal with the range of need and opportunities, local organizations and

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[142] Kevin Harris and Martin Dudley, "Many First Steps," interim report (London: Community Development Foundation, 2002), http://www.riservices.co.uk/Manyfirststeps.htm

[143] Pew Partnership and The University of Richmond, *Crafting a New Design for Civic Leadership* (2000), 1, http://www.pew-partnership.org/pdf/pceireport.pdf

[144] *Ibid*, 4-5.

institutions must effectively connect to broader systems both within and outside the community. Information technologies can support the internal management of these organizations and enhance their ability to interact with others to tackle tough community issues. Some of the examples in Chapter 1 illustrate the ways in which GIS technologies are being used to analyze the interconnectedness of community concerns in order to support collaborative and comprehensive community approaches.

Community Capacity

As described in Chapter 1, community capacity is the ability of individuals, families, and institutions to work collectively toward community-defined goals. Some of the key characteristics of capacity include a sense of community, commitment, the ability to solve problems, and access to resources.[145] The dissemination of information and the ability to engage and sustain a productive community dialogue is critical to achieving community capacity. Similar to the approach of PPGIS, building community capacity is an explicitly *bottom-up* process. As indicated in Figure 5.1, individual, leadership and institutional/organizational capacity are the very foundation for community capacity. One of two effective organizations or a handful of civic leaders can not substitute for a network of functioning and interacting individuals, institutions, and organizations in a community. Real sustained power comes from a broad and diverse network, which is not overly dependent on any one particular pillar. Therefore, the process of pursuing incremental and strategic power-building should be the fundamental objective of the Lawrence Project.

Figure 5.1: Capacity Building Pyramid

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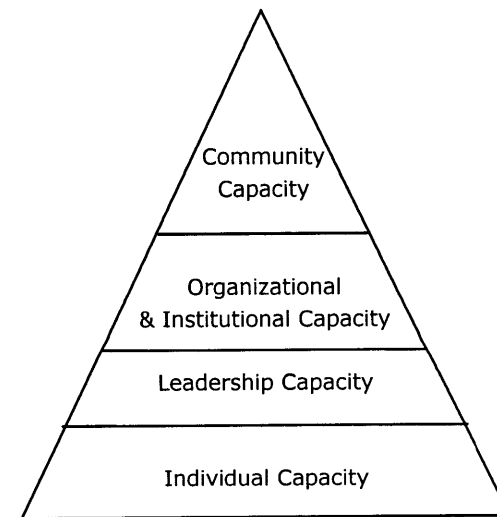
[145] Chaskin et al., 12.

Strategies: Building Community Capacity

The previous section recommends a general framework for thinking about the nexus between information technologies and community development in Lawrence. This framework builds upon existing LCW efforts to sustain a network of formal and informal support in Lawrence. The following section provides some specific strategies for guiding the Lawrence Project over the next several years.

Develop a Process, Not a Product

Engaging a broad range of community members in ongoing efforts to analyze, visualize, and mobilize around community concerns is an essential strategy for building community capacity. As illustrated in Chapter 1, community capacity is as much a process as an outcome. The process of engaging residents, institutions, and organizations to share, analyze, plan, and act is necessary for fostering individual, organizational, and community growth. Moreover, as illustrated in the sidebar, community involvement in addressing neighborhood concerns yields a number of powerful benefits. Community goals should drive the use of information technologies in community development efforts in Lawrence, rather than information or technology driving community action. As illustrated in previous chapters, information technologies offer powerful analytic, visual and communicative *tools* for fostering dialogue, identifying needs, establishing collaboration and advocating for change.

Unlike the case with the traditional NIS projects, the content and functionality of the web-based application and other tools developed through the Lawrence work must reflect community needs and interest. Figure 5.2 lays out a proposed process for institutionalizing this notion that community goals and strategies drive and sustain the Lawrence work over time.

Benefits of Community Involvement

- Communities have a direct perspective on issues facing them

- Community involvement helps to deliver programs which more accurate meet the their needs

- Projects are more acceptable to the community with improvements lasting longer because the community owns them

- It helps to build community organizational skills making it easier to develop strong successor skills

- Community involvement helps to revitalize local democracy

Scottish Social Inclusion Network, Inclusive Communities, Report of the Strategy Action Team (Edinburgh, 1999),

http://www.scotland.gov.uk/socialjustice/publications/docs/inco-00.htm

Figure 5.2: Proposed Lawrence Project Process
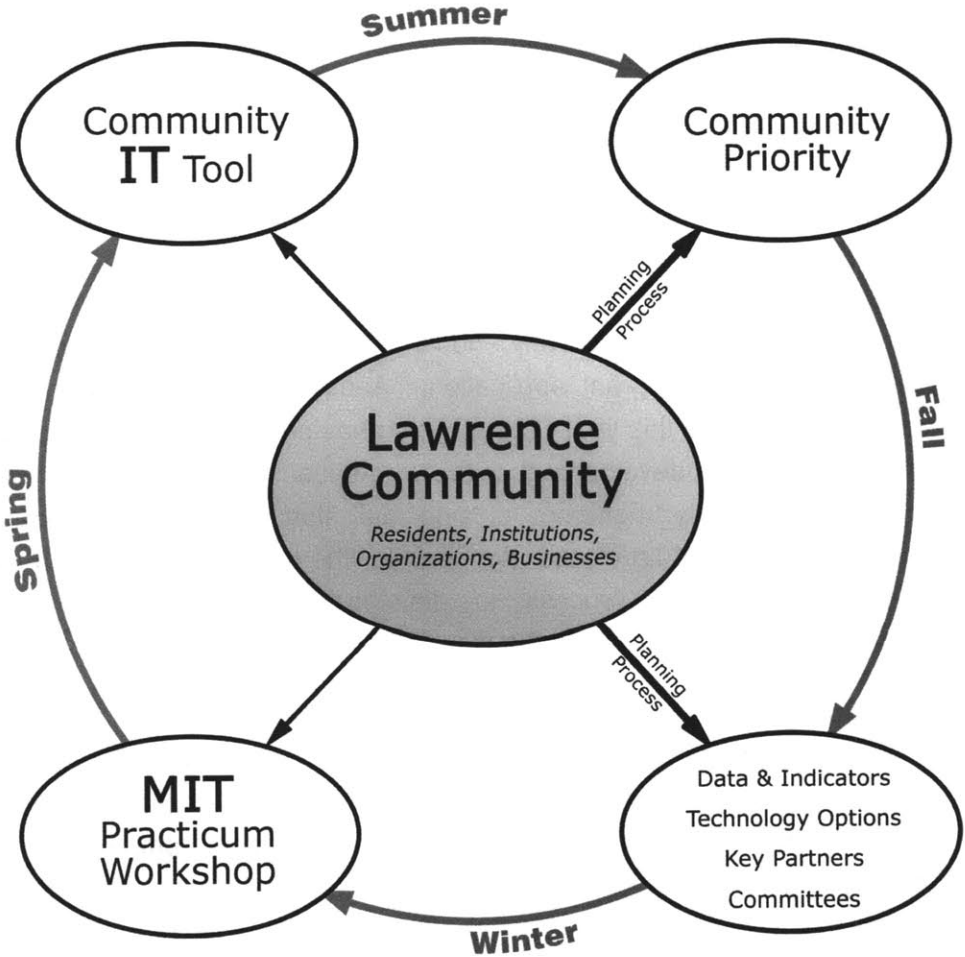
As illustrated in Figure 5.2, the Lawrence Community drives all aspects of the Lawrence Project. The idea is that there is an explicit planning process each year (perhaps in conjunction with LCW *Annual Summit*) to identify the community priority for the MIT Practicum workshop each year. There is a second planning process to establish community committees and identify and gather data, indicators, and partners needed to effectively analyze and address the priority. Community committees are also involved in the MIT workshop and the tool development. This process will repeat itself each year, with each new MIT workshop, and will build on past efforts.

Figure 5.3: Density of Children near Parks in Lawrence

0   0.9   1.8 Miles

Children/sq. km
- 62 - 1,045
- 1,045 - 1,790
- 1,790 - 2,993
- 2,993 - 5,394

- Parks
- 1/10 Mile Buffer
- Water Bodies & Rivers

N
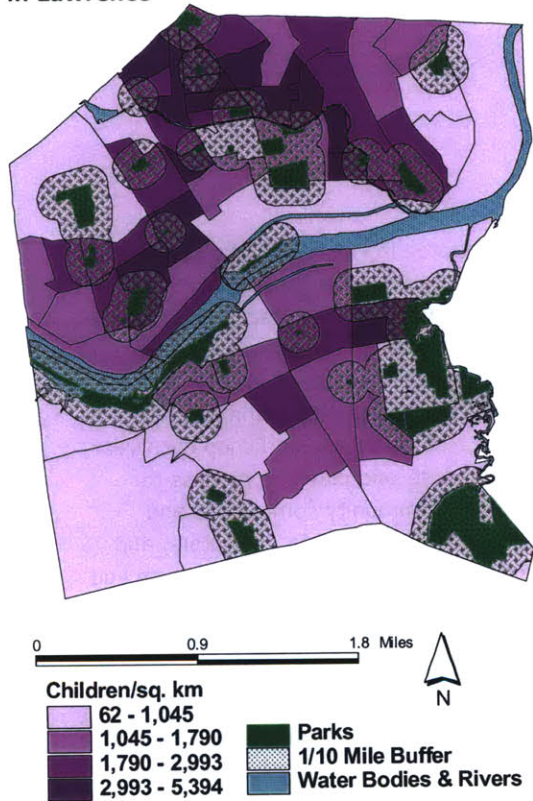
Legend detail:
Quantile classification with four classes.

In two very important ways, this idea of technology *supporting* community priorities is already occurring in Lawrence. Last year (2002) during the *11.524 Advanced GIS Workshop* course, one of the GIS maps created depicted the relationship between children and open space in the City of Lawrence. This had been a specific request from LCW, based on a hunch that there were serious discrepancies, which turned out to be the case (see Figure 5.3). Independent of this map, The City of Lawrence, Groundwork Lawrence, and several other organizations were aggressively pursuing federal funding for the creation and maintenance of parks in North Lawrence. LCW shared the map with the team, and the map served as a powerful tool for effectively communicating what the community already knew intuitively (local knowledge) and became the centerpiece of the federal grant application. Another example is the *11.524 Advanced GIS Workshop* this year (2003), which has previously been discussed in this thesis. While the development of the web-based zoning tool has directly engaged few community members outside the staff of LCW, Groundwork Lawrence, and the City of Lawrence, the need for the tool emerged from a two-year community planning process to develop community priorities and investment strategies for revitalizing the *Reviviendo* Gateway District.

However, community-driven effort must be *institutionalized* in a formal process in order to avoid the tendency to let technology or the tool drive the process. Each year, the MIT *Practicum* workshop must work towards developing a tool that serves issues and strategies already defined by the Lawrence community. This will make the work meaningful to both MIT/DUSP and the community, and will lead to greater sustainability and use of the tool. Furthermore, one of the most powerful aspects of community building is that learning occurs while doing. Engaging budding community leaders in a formal process to define priorities; reach out to valuable partners to form committees; and identify the data,

information, and technology needed to analyze, strategize, and mobilize fosters community dialogue and builds individual skills. Many of the NIS efforts examined in this thesis are undoubtedly adding value to local community development efforts. However, as they were created by top-down, externally-driven approaches, they vary in ability to foster dialogue and collaboration within the community; traditional NIS may generate meaningful policy outcomes, but falls short of building the needed skills and capacity of community members for tackling future concerns and priorities.

While many of the already organized and proficient individuals and organizations are clearly benefiting from NIS, without deeper community connections, these systems will continue to be a tool for a few. In reflecting on the critiques of technology and expert knowledge discussed in Chapter 1, the issues around information technologies run much deeper than access. Meaningful content and skill building are critical to engaging a broad and diverse audience. Several of the NIS sites are beginning to tackle these issues with new content and community-based trainings, but without a sustained dialogue, these sites are in danger of stagnation. The web-based approach is powerful for reaching multiple constituents. However, it is essential to engage with constituents in order to understand the range of interests and abilities. While it is a challenge unto itself to design one website to serve *the community*, it is improbable that a site designed without community consultation can effectively do so. This work in Lawrence must engage youth and residents in a fundamental way, to support exploration in the use of data and technology to serve personal, professional, academic, and community goals.

Local Knowledge

Another important benefit from engaging community members upfront in developing the tool is the incorporation of local knowledge. The knowledge that community members intuitively have about the assets and deficits in their community is important in that it reflects the perceptions and experience of community members. As indicated in Chapter 1, local knowledge offered important analytic tools around land reform in South Africa. Furthermore, the use of local knowledge will make the tool more meaningful to community members, in that it will reflect what "experts" or data say about the community and what its own members know through experience. As illustrated in Chapter 1, the use of local knowledge of one of the critical objectives of the PPGIS or bottom-up GIS movement.

Engage New Partners & Support

Partnerships have been fundamental to all of the NIS projects in terms of development, design, data collection, maintenance, and training. Partnerships with local government agencies have been important in every case; agencies provide the bulk of the data and public employees comprise the majority of the users. Trainings have been designed to specifically engage public agencies in using these sites, and in some cases, NIS has become the most comprehensive and accessible source of data even for city officials. BNIA is the only site to have engaged a broad cross-section of the population in the development of the site and maintains a formal committee structure to continue stakeholder involvement in particular aspects of the site (data, training, access, overall guidance). Most of the NIS projects also partnered with a local research institution to help manage data and analytic aspects of the work. A recent Seedco study examining six university-community partnerships found that this arrangement is critical to successful implementation of community-based technology efforts. The reviewed projects were able to leverage important expertise in terms of research and technology and critical resources such as graduate students and faculty support.[146]

The partnership between MIT and LCW is critical to the success of the Lawrence Project. MIT will help LCW overcome many of the staff and capacity issues surrounding the use of information technologies in community development work. LCW and the Lawrence community will ground research in a real place with real people, leading to a much more rewarding experience for students and faculty. However, to support the goal of building the capacity of organizations and

Community-Grounded Vision

The Seedco study on community-university information technology partnerships found that community technology programs were more effective when universities functioned as facilitators rather than directors; projects tended to be much more successful when driven by the community voice than university priorities. Similar to the objectives of the new DUSP *Practicum* requirement, these strong community partnerships bring vitality and new challenges to research efforts – with real places and real people. The six cases studies by Seedco also illustrate that sustained collaboration was the most effective way to bringing about community change.

Seedco, October 2002, 5-8.

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[146] Seedco, October 2002.

institutions, forming additional partnerships is critical. Specifically around efforts to gain access to reliable data and to provide formal trainings to community members on the use of data and technologies, it will be important to secure the collaboration of additional partners (e.g. partnerships with the public library, city and state agencies, educational and workforce development institutions). These more broad-based institutional partnerships will build community capacity and sustainability.

Building Resident Leadership in Lawrence

Another fundamental lesson learned through this thesis is the need to be explicit about the target users of a web-based application. While an underlying goal of the Lawrence work is to build the information literacy and technological fluency of Lawrence residents, the enormity and complexity of such a broad goal cannot be captured in one particular project. As indicated above, MIT and LCW should support existing activities in Lawrence to this end through strategic partnerships with organizations and institutions focused on providing lifetime learning, enhanced education, job training, and social services.

However, given LCW's mission to foster a resident-driven change effort in Lawrence, one strategic focus of the Lawrence Project should be on developing an information infrastructure that supports emerging community leaders in the process of becoming "change agents" in their communities. This requires skill building on a number of levels including personal empowerment, self-esteem, the use of information and technology, and civic participation or leadership skills such as writing, facilitation and public speaking.[147] A *resident leadership-building*

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[147] Chaskin et al., 31.

focus will ground the work along a strategic path of building community capacity to support positive change in Lawrence.

Community leadership training is a field unto itself and exceeds the scope of this thesis. However, one clear theme in capacity building is the need for a combination of both formal and informal learning. Moreover, there are several examples of partners of the Urban Institute's NNIP work that have experimented with various strategies to build community capacity to use data and information. A brief summary of these training options is provided here, taken from a report prepared by Terry Bailey of the Piton Foundation in Denver.[148] However, as the effectiveness of these efforts is not addressed in this thesis, there is a need for further exploration of these issues in order to develop successful training and skill building in Lawrence.

Training Community Members on Using Online Data

Cleveland CAN DO was initiated in 1995 by Case Western Reserve University in an effort to make data related to its *Poverty Report* available to the public. Initially begun as text-based data effort the program became a web-based application in 1999. Between 1995 and 2000 the university trained some 800 people on using the database (80 percent were agency staff and 25 percent were neighborhood residents and staff from grassroots organizations). This effort is

Online Data Training

Advantages:

- Can accommodate diverse audience of participants

- Can reach significant numbers of people

- Internet provides onsite demonstrations and learning

- Provided link between the university and the community

Disadvantages:

- Computer literacy and number of participants dictate how much can be achieved

- Training is about data – not grounded in a community context

- Computer lab may be inaccessible to some residents

Bailey, 2000, 3.

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[148] Terry Bailey, *Building Community Capacity to Use Information: Four Training Options From Experiences of The National Neighborhood Indicators Partnership* (Washington DC: The Urban Institute, December, 2000). http://www.urban.org/nnip/pdf/bailey2.pdf

primarily focused on helping individuals to use data about their communities and not linked to any specific community-based effort.[149]

Training Community Stakeholders to Apply Technology to Analyzing Data

In 1994 The Boston Foundation and its partners disseminated the Boston Children and Families Database (BCFD), designed to provide better understanding of the neighborhood conditions with respect to children and families. Training around this initiative was designed to address the connection between data and the tools necessary to use data. The effort involved customized software and training to help citizens easily interface with and manipulate the BCFD database. Software and applications are distributed to users, along with training. One of the key lessons learned through this effort was the need to stay abreast of new technologies.[150]

Training Community Stakeholders to Use Data as Part of a Comprehensive Leadership Program

Both the Providence Plan and the Piton Foundation have pursued comprehensive leadership training programs to engage emerging community leaders in the context of addressing community issues. This time- and resource-intensive work has primarily been supported by the Pew Partnership and the Annie E Casey Foundation. These programs were a direct response to the need to engage residents and community leaders in accessing and using data to address specific community concerns, and are tied to a mission to build local leadership within the broader community. Future efforts of both of these projects

Comprehensive Leaders Training

Advantages:

- Works well with residents and grassroots constituencies

- Builds other skills supportive of data access and use

- Supports community change efforts rather than just data use

Disadvantages:

- Requires greater resources and commitment of time

- Given range of topics covered, less classroom time devoted to data access and use

- Can't assume any basic skills present

- Must be highly flexible, adapting training and material to be culturally sensitive and relevant to participants

Bailey, 2000, 11

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[149] *Ibid*, 3-5.

[150] *Ibid*, 6-10.

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are connected to the Casey Foundation's *Making Connections* initiative, which targets particular neighborhoods to train residents and community leaders to collectively gather and analyze data about their communities.[151]

Training Community Stakeholders in the Hands-On Use of Data in Specific Applications

As part of its *Information for Change* effort, the Providence Plan has been working to engage community stakeholders in gathering and using data about particular places and issues in Providence. These efforts have been varied, from developing a *Neighborhood Fact Book* for each of the city's neighborhoods to recruiting and training organizations on the use of data in exchange for data contributions to a citywide services database. The Providence Plan has also been working with key stakeholders on a demography initiative to better understanding the city's rapidly growing public school population.[152]

Develop Metrics and Indicators of Success

One of the key challenges of this thesis was to assess whether existing NIS and other community development IT efforts were empowering communities. While the research uncovered data on the ways in which the use of information technologies were positively impacting public policy and neighborhood change, none of the projects had developed benchmarks or indicators around community empowerment or community building. It is critical for the Lawrence Project not only to develop indicators and measure success with respect to a particular community priority, but to develop a set of indicators around the more

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[151] *Ibid*, 11-14.
[152] *Ibid*, 15-17.

incremental process of building community power and capacity. What does community power look like? What are some of the key components of community capacity that can be measured – both quantitatively and qualitatively? What indicators can help guide the effort into the future? Developing these tools will require additional research and investigation into past and current efforts to measure community capacity and community power. Furthermore, measuring the processes and outcomes of capacity building is still an area that requires further research.[153] The sidebar presents one set of metrics that were used to measure collective community capacity in the Mississippi delta. Similarly, given the leadership-building focus of the LCW, developing indicators around leadership building is also critical.

In addition to tracking and communicating success internally and with funders, the use of indicators is important for creating community-wide accountability and broadly sharing accomplishments. Communicating successes is a key strategy for sustaining momentum and providing a sense of gratification for challenging and slow-going work. In a presentation at the *Next Generation of Community Statistical Systems* Conference in 2002, George McCarthy of the Ford Foundation explained that this kind of work – tackling complex neighborhood and community issues – requires passion and inspiration. He argues that indicators can help make these efforts and accomplishments tangible. He also argues that passion and inspiration increase as success is communicated with others.[154]

Metrics of Community Capacity

- Participation in community affairs
- Commitment to the community
- Awareness of constituent groups and agencies and their contribution to community identity
- Ability to express collective views and exchange communication
- Mechanisms for conflict containment and accommodation
- Ability to use resources and manage relations with the wider society
- Ability to establish formal means for representative input to decision making
- Social support

E. Eng and E. Parker, "Measuring Community Competence in the Mississippi Delta: the interface between program evaluation and empowerment," *Health Education Quarterly* 21, (1994), quoted in Napier, 2002.

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[153] Napier, 2002.

[154] George McCarthy, introductory remarks at *Next Generation of Community Statistical Systems* conference (Shimberg Center for Affordable Housing, March 13, 2002), http://www.shimberg.ufl.edu/conference.html

Concluding Thoughts

While the lessons learned from the research and writing of this thesis have been applied to the specific characteristics, institutions, and individuals associated with Lawrence, I believe the findings of this thesis to be universal and pertinent to other community development efforts – despite contextual, institutional, and technological variations.

This thesis began by questioning the existing and potential relationship – or the nexus – between information technologies and community development. It has concluded with lessons about *process, approach, and strategy*. It has documented the potential power that can arise from the use of information technologies to visualize, analyze, and mobilize around neighborhood concerns, but does not presume to understand specifically how technology should be applied in Lawrence. The particulars of the content, functionality, and application of the *tool* are best determined by the Lawrence community.

Shortcomings of existing community-based technology programs illustrate that the important lessons have more to with institutions and people than they do with the technology. Information technology is a tool and it will only be as powerful and far-reaching as the people who use it. In order for community-based technology projects to impact people's lives in meaningful and sustainable ways, they must engage the people they are intend to serve.

Similar to the converging theories around the digital divide and community building, community development interventions must extend beyond the *access to assets* – whether they be computers, affordable homes, or a living wage jobs – to the *utilization of assets*. The ability to make use of assets is related to the skill and capacity of individuals, leaders, and organizations. Moreover, the *process* of

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engaging communities in identifying priorities, performing analysis, and taking action can lead to more profound social outcomes than the intervention itself. Bottom-up and participatory approaches to neighborhood revitalization are important strategies for building and sustaining networks of dialogue, interaction, understanding, and collaboration. These activities have a direct impact on the social, economic, and political capital of a neighborhood, which affect its ability to successfully leverage internal and external assets for sustainable change.

These lessons are valuable not only with respect to community-technology efforts, but more generally to all community development work. While external assets and resources are important for comprehensive community building, they alone will not succeed in bringing sustainable change. Without genuine involvement, improvements in neighborhoods will continually fall short of addressing the deeper and more structural issues in today's society around literacy, education, poverty – all of which directly impact *opportunity*. Returning to Logan and Molotch's idea of communities of fate – community development efforts must address these deeper structural issues that affect the opportunity in neighborhoods.

Every neighborhood has varying degrees of capacity with respect to its particular community-based organizations, research institutions, civic leaders, government agencies, or residents. The strategy of community development should be to use technology or any intervention to develop and build on these internal assets and support community-driven change. Depending on the neighborhood, the incremental process of building community power may take months or years. The key is to ground the work in community-driven goals and priorities that promote interactions, learning, and skill building within the community.

BIBLIOGRAPHY

Al-Kodmany, Kheir. "Extending Geographic Information Systems to Meet
     Neighborhood Planning Needs: The Case of Three Chicago
     Communities." *URISA Journal* 12, no. 3 (2000).
     http://www.urisa.org/Journal/protect/vol12no3/al-kodmany/al%20kodmany.pdf

_____. *GIS and the Artist: Shaping the Image of a Neighborhood in
     Participatory Environmental Design.* Position paper presented at Project
     Varenius Specialist Meeting: *Empowerment, Marginalization and Public
     Participation GIS*, Santa Barbara, CA, 1998.

Andors, Jessica. *City and Island: Dominicans in Lawrence: transnational
     community formation in a globalizing world.* MCP Thesis, MIT, 2001.

Association of College and Research Libraries. Information Literacy Competency
     Standards for Higher Education, 2000. http://www.ala.org

Bailey, Terry. *Building Community Capacity to Use Information: Four Training
     Options From Experiences of The National Neighborhood Indicators
     Partnership.* Washington DC: The Urban Institute, December, 2000.
     http://www.urban.org/nnip/pdf/bailey2.pdf

Barndt, Michael. "Building Upon Neighborhood Data System Models: Taking the
     Next Steps" presented at *Public Participation GIS Conference.* URISA,
     July 22, 2002.

Bauer, Raymond A., ed. *Social Indicators.* Cambridge, MA, London: The MIT
     Press, 1996.

Blackford, Lauren and Mueller, Lisa. "Partners Power GIS." NHI Shelterforce
     Online, Nov/Dec 2002. http://www.nhi.org/online/issues/126/gispartners.html

Bosworth, Mark and Donovan, John. "A Mapmaker's Dream: Public Involvement Applications Utilization of GIS." Position paper presented at Project Varenius Specialist Meeting: *Empowerment, Marginalization and Public Participation GIS*, Santa Barbara, CA, 1998.
http://www.ncgia.ucsb.edu/varenius/ppgis/papers/bosworth.html

Castells, Manuel. *The Power of Identity*. Oxford: Blackwell Publishers, 1997. Quoted in Bill Pitkin, "The Politics of Neighborhood Planning and Collective Action," working paper for UCLA Advanced Policy Institute (2001), 29.

Chaskin, Robert J., et al. *Building Community Capacity*. New York: Aldine de Gruyter, 2001.

Chua, Yang Liang and Wong, Sidney. *Data Intermediation and Beyond: How the Web Modifies the Dissemination of GIS Information*, 2002.
http://www.urisa.org/PPGIS/2002/papers/SWong.pdf

City of Lawrence Planning Department. *Master Plan for Community Renewal*. City of Lawrence, Massachusetts, 1970. Quoted in Katharine Gormley, *Old Patterns, New Paths: A Look at Lawrence, Massachusetts' CDBG Program and Allocations* (Master's Thesis, Tufts University, 2003).

Connery, John. Memorandum to *Reviviendo* Gateway Initiative Steering Committee, July 22, 2002.

Coulton, Claudia, Nelson, Lisa and Tatian, Peter. *Catalogue of Administrative Data Sources: For Neighborhood Indicators Systems*. The Urban Institute-National Neighborhood Indicators Partnership, 1998.
http://www.urban.org/nnip/pdf/catalog.pdf

Craig, William J. and Elwood, Sarah A. *How and Why Community Groups Use Maps and Geographic Information. Cartography & Geographic Information Systems* 25, no. 2 (1998).
http://www.iapad.org/publications/ppgis/How_and_why_community_groups_use_maps.pdf

Crowley, Cathleen F. "As Latino Population Surges, so does it power, influence."
    The Eagle-Tribune, July, 1 2001.
    http://www.eagletribune.com/specials/buildingbridges/20010701/LN_004.htm.

Davidoff, Paul. "Advocacy and Pluralism in Planning." *Journal of the American
    Institute of Planners* 31, no. 4 (1996).

Davis, John. Contested *Ground: Collective Action and the Urban Neighborhood.*
    Ithaca, NY: Cornell University Press, 1991. Quoted in Bill Pitkin, "The
    Politics of Neighborhood Planning and Collective Action," working paper
    for UCLA Advanced Policy Institute (2001), 25.

Eng, E. and Parker, E. "Measuring Community Competence in the Mississippi
    Delta: the interface between program evaluation and empowerment."
    Health Education Quarterly 21, (1994). Quoted in Anne C. Napier,
    *Lessons for Community Capacity Building: A Summary of the Research
    Evidence* (Mount Isa Center for Rural and Remote Health, September
    2002). http://www.micrrh.jcu.edu.au/conference/p-napier.pdf 2002.

Fainstein, Susan. "New Directions in Planning Theory." *Urban Affairs Review* 35,
    no.4 (March 2002).

Ferguson, Ronald F. and Dickens, William T., eds. *Urban Problems and
    Community Development.* Washington, DC: Brookings Institution Press,
    1999. http://brookings.nap.edu/books/0815718756/html/index.html

Foucault, Michel. *Remarks on Marx: Conversations with Duccio Trombadori.*
    New York: Semiotext(e), 1991.

Gasteyer, Stephan and Flora, Cornelia Butler. *Social Indicators: An Annotated
    Bibliography on Trends, Sources and Development, 1960-1998,* 1999.
    http://www.ag.iastate.edu/centers/rdev/indicators/introduction.html

Gaventa, John. "The powerful, the powerless, and the experts: Knowledge
    struggles in an information age," in *Voices of change: Participatory*

Research in the United States and Canada, ed. Peter Park et al. Westport: Bergin & Garvey, 1993.

Glickman, Norman and Servon, Lisa. "More Than Just Bricks and Sticks." Working Paper no. 132. Center for Urban Policy Research, Rutgers State University of New Jersey, 1997.

Goodman, Robert, Speers, Marjorie, and McLeroy, Kenneth. "Identifying and Defining Dimensions of Community Capacity to Provide a Basis for Measurement." *Health Education and Behavior* 25, no. 3 (June 1998).

Gormly, Katharine. *Old Patterns, New Paths: A Look at Lawrence, Massachusetts' CDBG Program and Allocations.* Master's Thesis, Tufts University, 2003.

Harris, Kevin and Dudley, Martin. "Many First Steps," interim report, London: Community Development Foundation, 2002.
http://www.riservices.co.uk/Manyfirststeps.htm

Hillier, Amy et al, "Predicting Housing Abandonment with the Philadelphia Neighborhood Information System." *Journal of Urban Affairs* 25, no. 1 (2003).

Howard, Daniel. *Geographic Information Technologies and Community Planning: Spatial Empowerment and Public Participation.* Position paper presented at Project Varenius Specialist Meeting: *Empowerment, Marginalization and Public Participation GIS,* Santa Barbara, CA, 1998.

Innes, Judith. "Information in the Communicative Planning." *Journal of the American Planning Association* 64, no. 1 (1998).

Judd, Dennis and Swanstrom, Todd. *City Politics: Private Power & Public Policy.* New York: Harper Collins, 1994.

Kellogg, Wendy A. "From the Field: Observations of Using GIS to Develop a
         Neighborhood Environmental Information System for Community-based
         Organizations." *URISA Journal* 11, no. 1 (1999).

Kingsley, Thomas. "Using Information for Community Change" presented at *Next
         Generation of Community Statistical Systems* conference. Shimberg
         Center for Affordable Housing, March 13, 2002.
         http://web.dcp.ufl.edu/chakabry/Shimberg_Conference/Wed-KingsleyOK.htm

_____. *Neighborhood Indicators: Taking Advantage of the New Potential.* The
         Urban Institute-National Neighborhood Indicators Project, October, 1998.
         http://www.urban.org/nnip/pdf/kingsle1.pdf

Kingsley, Thomas, McNeely, Joseph B. and Gibson, James O. "Community
         Building: Coming of Age." Online paper of The Urban Institute's
         Development Training Institute, Inc. (1997).
         http://www.cpn.org/topics/community/commbuild.html#preface

Kretzmann, John P. and McKnight, John L. *Building Communities from the Inside
         Out: A Path toward Finding and Mobilizing a Community's Assets.* Center
         for Urban Affairs and Policy Research, Northwestern University, 1993.

Krumholz, Norman. "A Retrospective View of Equity Planning: Cleveland, 1969-
         1979." *Journal of the American Planning Association* 48, no. 4 (1982)

Kubisch, Anne C. "Comprehensive Community Initiatives: Lessons in
         Neighborhood Transformation." NHI Shelterforce Online, Jan/Feb 1996.
         http://www.nhi.org/online/issues/85/compcominit.html

Laudeman, Greg. *Digital Development: A Framework for Applying Information
         Technology to Community Socioeconomic Development.* White paper,
         Georgia Tech Economic Development Institute, 2003. http://greg.laudeman.com/digi-
         dev/dd_wp/DD_wp.htm

Lawrence Project meeting, January, 29, 2003.

Leitner, Helga, et al. *Models for Making GIS Available to Community Organizations: Dimensions of Difference and Appropriateness.* Position paper presented at Project Varenius Specialist Meeting: *Empowerment, Marginalization and Public Participation GIS,* Santa Barbara, CA, 1998. http://www.ncgia.ucsb.edu/varenius/ppgis/papers/leitner.pdf

Logan, John and Molotch, Harvey. *Urban Fortunes: The Political Economy of Place.* Berkeley, Los Angeles, London: University of California Press, 1997.

Manchenton, Molly. "Study: City's rules can thwart revival." *The Eagle-Tribune,* November 8, 2002. http://www.eagletribune.com/news/stories/20021108/FP_002.htm

Massachusetts Workforce Board Association, "Quarterly Meeting Report." October 2002.

Massey. Douglas and Denton, Nancy. *American Apartheid: Segregation and the Making of the Underclass.* Cambridge: Harvard Press, 1993.

MassINC, *New Skills for a New Economy: Adult Education's Key Role in Sustaining Economic Growth and Expanding Opportunity.* MassINC, 2000. http://www.massinc.org/

McCarthy, George. Introductory remarks at *Next Generation of Community Statistical Systems* conference. Shimberg Center for Affordable Housing, March 13, 2002. http://www.shimberg.ufl.edu/conference.html.

MIT Department of Urban Studies and Planning, internal memorandum, March 9, 2003.

Mt. Auburn Associates Inc. *Third-Tier Cities: Adjusting to the New Economy.* US Economic Development Association, US Department of Commerce, 2001. http://www.osec.doc.gov/eda/pdf/1g3lr_8_siegel.pdf.

Murnane, Richard and Levy, Frank. *Teaching the New Basic Skills.* The Free Press, 1996.

Napier, Anne C. *Lessons for Community Capacity Building: A Summary of the Research Evidence.* Mount Isa Center for Rural and Remote Health, September 2002. http://www.micrrh.jcu.edu.au/conference/p-napier.pdf

National Neighborhood Indicators Project (NNIP). *Stories: Using Information in Community Building and Local Policy.* Washington DC: Urban Institute, 1999. http://www.urban.org/nnip/pdf/dstory.pdf.

NKLA. "Final Project Report to TOP by the UCLA Advanced Policy Institute," October 1, 1998 – September 30, 2001, Grant # 06-6-98047. http://nkla.ucla.edu/help/translator/FinalTOPReport_API.pdf

O'Connor, Alice. "Swimming against the Tide: A Brief History of Federal Policy in Poor Communities," in *Urban Problems and Community Development*, ed. Ronald Ferguson and William Dickens, Washington, DC: Brookings Institution, 1999. http://brookings.nap.edu/books/0815718756/html/index.html.

Peterman, William. Neighborhood *Planning and Community-Based Development: The Potential and Limits of Grassroots Action.* Thousand Oaks, CA: SAGE Publications, 2000.

Peterson, Paul. *The Price of Federalism.* Washington, DC: Brookings Institution, 1995.

Pew Partnership and The University of Richmond. *Crafting a New Design for Civic Leadership*, 2000. http://www.pew-partnership.org/pdf/pceireport.pdf

Pitkin, Bill. "A Historical Perspective of Technology and Planning." *Berkeley Planning Journal* 15, (2001). http://dcrp.ced.berkeley.edu/bpj/pdf/15-Pitkin.pdf

_____. "The Politics of Neighborhood Planning and Collective Action." Working paper for UCLA Advanced Policy Institute (November 2001). http://api.sppsr.ucla.edu/pdf/politics_of_neighborhood_planning.pdf.

_____. *Community Informatics for Community Development: Hope or Hype?* UCLA Advanced Policy Institute, no date. http://api.sppsr.ucla.edu/pdf/community_informatics.pdf

PolicyLink. *Community Mapping: Using Geographic Data for Neighborhood Revitalization.* Oakland, New York: PolicyLink, 2002.
http://www.policylink.org/RE_Mapping.html

_____. *Bridging the Organizational Divide: Toward a Comprehensive Approach to the Digital Divide.* Oakland, New York: PolicyLink, 2001.
http://www.policylink.org/pdfs/Bridging_the_Org_Divide.pdf

Reviviendo Gateway Initiative Steering Committee. Final Report, November 2003. http://www.lawrencecommunityworks.org/rgireport.html

Santos, Fernanda and Armerding, Taylor. "English Spoken Here." *The Eagle-Tribune,* July 20, 2001. http://www.eagletribune.com/specials/buildingbridges/20010720/FP_001.htm.

Sawicki, David S. and Peterman, D. Randy. Understanding the Breadth and Depth of PPGIS Supply. Position paper presented at Project Varenius Specialist Meeting: *Empowerment, Marginalization and Public Participation GIS,* Santa Barbara, CA ,1998.
http://www.ncgia.ucsb.edu/varenius/ppgis/papers/sawicki.pdf

Sawicki, David S. and Flynn, Patrice. "Neighborhood indicators: A review of the literature and an assessment of conceptual and methodological issues." *Journal of the American Planning Association* 62, no. 2 (1996).

Scottish Social Inclusion Network. *Inclusive Communities.* Report of the Strategy Action Team, Edinburgh, 1999. http://www.scotland.gov.uk/socialjustice/publications/docs/inco-00.htm

Seedco. Opening the Door: Technology and the Development of University-Community Partnerships. New York: Seedco, October, 2002.
http://www.seedco.org/whatsnew/pressrelease/pritems/techuni1102.pdf

_____. *The Evolving Role of Information Technology in Community Development Organizations.* New York: Seedco March, 2002.
http://www.seedco.org/about/news/Seedco-Evolving_Role_of_IT-V3.pdf.

Shelterforce, "Comprehensive Community Initiatives: Selected Initiatives." NHI Shelterforce Online, Nov/Dec 1997. http://www.nhi.org/online/issues/96/cciinits.html

Shiffer, Michael. "Interactive Multimedia Planning Support: Moving from Stand-Alone Systems to the World Wide Web." *Environment and Planning B: Planning and Design*, 22 (1995). http://gis.mit.edu/people/mshiffer/shiffer3.pdf.

Sieber, R.E. "GIS Implementation in the Grassroots." *URISA Journal* 12, no. 1 (2000). http://www.urisa.org/Journal/protect/vol12no1/sieber/sieber.pdf

Smith, Gregory. "Consultant Hired to Track City's Efficiency." *The Providence Journal*, Metro Section, March 14, 2003.

Steyaert, Dr. Jan. "The Digital Divide: From Access to Information Literacy and Risk Behavior." *Technology and the City*, MIT Department of Urban Studies & Planning Colloquium Series, April 18, 2003.

Stoecker, Randy. "The CDC Model of Urban Redevelopment: A Critique and an Alternative." *Journal of Urban Affairs* 19, no. 1 (1997).

Stoutland, Sara E. "Community Development Corporations: Mission, Strategy and Accomplishments" in *Urban Problems and Community Development*. Washington, DC: Brookings Institution Press, 1999.
http://brookings.nap.edu/books/0815718756/html/index.html

Talen, Emily. "Bottom-Up GIS: A New Tool for Individual and Group Expression in Participatory Planning." *Journal of the American Planning Association*, 66, no. 3 (2000).

The Massachusetts Department of Education.
http://www.boston.com/mcas/scores2001/district_results_summary.pdf

Traynor, William. "Community Building: Hope and Caution." NHI Shelterforce Online, Sept/Oct 1997. http://www.nhi.org/online/issues/83/combuild.html

_____. *The Case for Family Asset Building as an Economic Development and Empowerment Strategy for Lawrence, MA* , internal paper, February, 2003.

US Census Bureau. "Profile of the Foreign-Born Population in the US: 2000,"
     Current Population Reports, Series P23-206. Washington DC: GOP,
     2001. http://www.census.gov/prod/2002pubs/p23-206.pdf

_____. *US Census of Population: 1960, General Social and Economic
     Characteristics, Massachusetts.* Final Report PC(1)-23C. Washington
     DC: GPO, 1961.

US Department of Commerce, NTIA, ESA. A *Nation Online: How Americans Are
     Expanding Their Use of the Internet.* Washington DC: GPO, 2002.
     http://www.ntia.doc.gov/ntiahome/dn/anationonline2.pdf.

Vogler, Mark E. "New Hope for North Common." *The Eagle-Tribune*, December
     9, 1999. http://www.eagletribune.com/news/stories/19991209/LN_002.htm

Weiner, Daniel and Harris, Trevor. "Community Integrated GIS for Land Reform
     in South Africa." (2002), currently under peer review by the URISA
     Journal, http://www.urisa.org/Journal/accepted/2PPGIS/weiner/community_integrated_gis_for_land_reform.htm

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Appendix A: Contributing Individuals

I would like to thank the following individuals who shared their time and knowledge through formal interviews, informal conversations or website evaluations:

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Appendix B: *Reviviendo* Gateway Initiative Press

Kathleen Conti, "Coalition to bring city's vision to DC lawmakers: Group will state case for federal aid," *Boston Sunday Globe*, February, 23, 2003.

Allison Frank, "Reviviendo makes new friends in Capital," *The Eagle-Tribune*, February 28, 2003.

Globe NorthWest

BOSTON SUNDAY GLOBE FEBRUARY 23, 2003

LAWRENCE

Coalition to bring city's vision to D.C. lawmakers

Group will state case for federal aid

By Katheleen Conti
GLOBE STAFF CORRESPONDENT

For members of the Reviviendo Gateway Initiative, years of planning and gathering ideas to redevelop rundown properties in Lawrence cannot wait for the economy to turn around.

Now in the action phase, group members know it will be an uphill climb to get the resources they need to bring their ideas to life, so they're taking their case straight to

Washington.

"We want to get attention to the city of Lawrence. Nationwide attention," said Liz Gutierrez, director of neighborhood planning for Lawrence CommunityWorks Inc., one of the many organizations involved with the initiative. "And we want to build relationships with persons there. This is not a one-shot deal. There's a lot of work that needs to be done here."

A group of about 50 people, including city officials, business leaders, and residents, will pay their way to the nation's capital Wednesday for a one-day presentation, where they are scheduled

to talk to staffers of the state's US Senators Edward M. Kennedy and John F. Kerry and to representatives from several federal agencies, including the departments of Education, Commerce, Labor, Interior, Transportation, and Housing and Urban Development; the Environmental Protection Agency; and the National Endowment for the Arts.

"We don't think that people in Washington can understand the impact of this project unless we all go make the case. . . . It's about getting the message out, sharing this vision and being as compelling as
LAWRENCE, Page 6

Liz Gutierrez of Lawrence CommunityWorks, in front of an illustration showing possible improvements to Lawrence.
GLOBE STAFF PHOTO/JOANNE RATHE

Delegation going to Washington to outline vision for Lawrence

► LAWRENCE
Continued from Page 1

we possibly can to make it clear what the situation is," Gutierrez said. "We want to make a big bold statement that the city of Lawrence has a vision and that we do

have a plan. What we need from them is to provide the support to make it happen."

The vision is part of a 15-year effort known as the Lawrence Gateway Project to improve access to the city from Interstate 495 and other areas. The redevelopment approach was extended to the mill district neighborhoods, downtown, and other areas after Lawrence CommunityWorks and its Reviviendo (Spanish for "revitalizing") project joined in the effort two years ago.

Local leaders and other community organizations soon followed and formed a coalition aimed at redeveloping Lawrence in order to attract more businesses and tourism and improve the city's economy.

US Representative Martin T. Meehan, a Lowell Democrat, suggested the Washington trip as a way of showcasing the progress the group has made in Lawrence, including getting public, private, and nonprofit organizations to commit more than $150 million to clean up after and improve access from I-495.

"It should be held up as a model," Meehan said. "We're still going to need a commitment from the federal government to provide housing. Cities like Lawrence are going to have a hard time, but if we can get a broad group of people coming to Lawrence, we can hold the Gateway Project as a model of

> 'It's not just doing an old mill, rehabing housing and a park, it's looking at the whole city of Lawrence.'
> SUSAN C. TUCKER
> *State senator*

of Lawrence," said state Senator Susan C. Tucker, an Andover Democrat who also represents Lawrence.

Some of the projects to be presented in Washington include details on the progress that has been made with the rebuilding of the Marston Street interchange and removing the old Oxford Paper Co. building, which has two vacant acres of land owned by the city. Another one of the projects involves the cleanup of an 8-acre contaminated site owned by GenCorp, which has been in remediation for 18 years and is being eyed for much-needed parking for about 1,200 cars.

But Gutierrez said the message to Washington will not just be about redeveloping old buildings and sites, but a "multifaceted approach to developing this area."

"Primarily we want to talk about our vision with the Gateway Project, but also tell them that in order to make changes, we need to do a whole host of things which include investing in people, family, asset building, and education," Gutierrez said.

"The other part of this message is the fact that we have a lot of opportunities in this district, the Reviviendo Gateway district," she said. "We have a lot of mill buildings. . . . There's lots of opportunities to create new housing, art housing, mixed used, and improvements in the downtown."

FRIDAY
February 28, 2003

The Eagle-Tribune

Pulitzer Prize winner and New England Daily and Sunday Newspaper of the Year

Vol. 285, No. 51
36 pages 50 cents

Reviviendo makes new friends in Capital

By Allison Frank
Staff Writer

WASHINGTON — Lawrence teenager Richard Fernandez sat with staffers in Sen. Edward M. Kennedy's office on Capitol Hill this week and talked about labor issues.

Gilda Duran, administrative director for Reach 2020 Latino Health, exchanged business cards and e-mail addresses with employees of the federal Department of Health and Human Services.

And Guy Kelley Jr., director of the Merrimack Valley Community Service Corps, learned of an untapped resource for the performing arts in New England while visiting with officials at the National Endowment for the Arts.

That was just the beginning of a day in the nation's capital for Lawrence community leaders and activists Wednesday.

Congressman Martin T. Meehan invited Lawrence Mayor Michael J. Sullivan and about 50 other Lawrencians to Washington, where they met with staffers at federal agencies and the offices of Sens. Kennedy and John F. Kerry.

Their main goal was to gain support for the Reviviendo Gateway Initiative — an economic development project that aims to revitalize downtown Lawrence and the mill district.

Lawrence Community Works and Groundwork Lawrence are the two groups working with business and mill owners, civic groups, and residents of the North Common neighborhood to transform vacant lots and abandoned buildings into new homes, shops and restaurants.

The group also wants to improve education and create more employment opportunities in the city.

"We are blessed to have these leaders represent us here," Sullivan said. "They are setting a trend for every future generation."

The group paid their own way to Washington and started their day at 9 a.m. with a gathering that quickly turned into a pep rally as they cheered and shouted "Reviviendo!"

The chant hadn't let up by the 5 p.m. gala.

Kennedy even got into the spirit, greeting the group at the reception by waving his fists in the air and answering their chant of "Reviviendo!"

Kennedy said the project will improve the quality of life in Lawrence and create more opportunities for residents. He praised the group for its enthusiasm and determination, and pledged to be with them "every step of the way."

"Marty (Meehan) and I agree that when we elect John Kerry as president of the United States, the first thing that he is going to have on his list is Reviviendo!" Kennedy said in a booming voice to the cheering crowd.

While the group didn't leave Washington with the promise of money for its coffers, Meehan, D-Lowell, said group members made a good impression on the people who have the power to help them, especially Kennedy, whom Meehan called the most effective senator in Congress.

Bill Traynor, executive director of Lawrence Community Works, called the day a success, and said he hopes Lawrence will now be at the top of the list for federal grants.

While the group made its case in Washington Wednesday, the board of MassDevelopment voted to coordinate "all of their efforts" for the portion of the project that involves city-owned land and property belonging to GenCorp, a technology-based company headquartered in Sacramento, Calif.

The company used to house a rubber plant in Lawrence, and has pledged to clean up the site and help develop it into a parking lot.

Karen Sawyer, MassDevelopment's executive vice president for enterprise development, said her agency hasn't committed any money yet to the project in Lawrence, but that it will handle all grants and money coming from the state and federal governments for parcels included in the project that belong to the city and GenCorp.
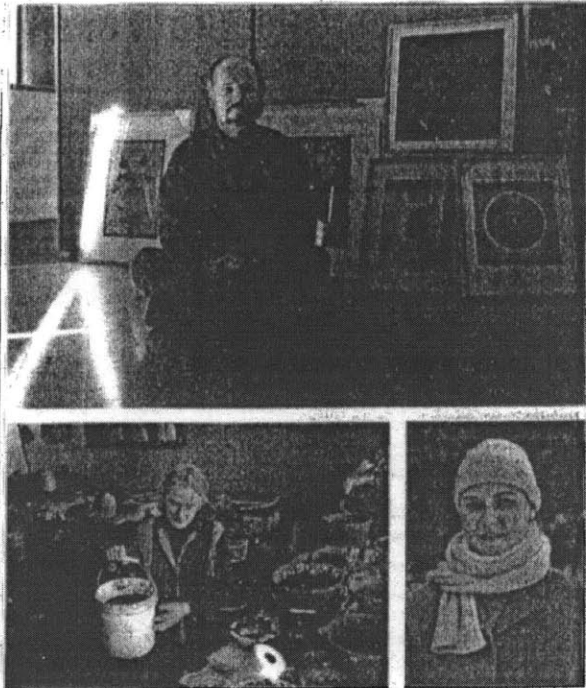
Greg Welch (top) and Barbara Fletcher (above, left) are artists who work at 60 Island St., a former mill in Lawrence's budding arts district. Maggie Super (above, right) of Groundwork Lawrence, is among those pushing for zoning changes to attract more artists to the city.

Zoning called tool to lure artists

Live/work usage in mills proposed in revival effort

By Bill Ewing

LAWRENCE — Debbie Silke knows first-rate industrial space when she sees it.

Silke, a textile artist and entrepreneur, recently rented a 4,200-square-foot studio space on the fourth floor of 250 Canal St. in Lawrence's historic mill district. With its 14-foot-high ceilings and five bays of windows that take up much of its southern wall, the voluminous space is an artist's dream.

"People who haven't had factory studio space can't begin to know how valuable the mill buildings are to the arts," says Silke, a Lawrence native who was among the founders of Allston's Rugg Road studios, where she lived and ran a business for most of the 1980s.

Today, Silke says, she would consider living in the Canal Street studio, if she didn't already own a house on Tower Hill.

Michael Broomfield of Andover, who has owned 250 Canal since 1972, is all for the idea. He currently has eight artists renting space and would love to transform some of his 575,000-square-foot building into studios where artists can live and work.

So would his neighbor Chet Sidell, who owns four buildings in the mill district, including 56 Island St., home to the Essex Art Center for the past eight years.

None of the old mills, however, is currently zoned for residential use, making the idea of live/work studio space an impossible dream. But change is in the air.

Silke, Broomfield, and Sidell are all part of an artists' housing task force formed last June at the request of Mayor Michael Sullivan to explore ways to attract more artists — and the restaurants, galleries, and retail shops that follow them — to fill vacant space in the mill buildings of Lawrence.

arts and culture as playing a major role in the revitalization of the city. Ideas abound for creating a dynamic arts district that would capitalize on the city's architecture, unique landscape, and easy access to Boston. But much depends on changing what some have described as the city's unusually restrictive and archaic zoning regulations.

"Everything we do hinges on zoning changes," said Broomfield, who first looked into creating artist living/working space in his building 18 years ago but met resistance from city officials. "All these great ideas we have, they'll just be stored away for another generation unless mill owners are given a chance to be creative and do things that will ultimately benefit the city as a whole."

The artists' housing task force is not alone in its concern about outdated zoning regulations in Lawrence. The Reviviendo Gateway Initiative has been examining this issue over the past year with help from John Connery, a Boston-based zoning consultant, and will submit a zoning change proposal to the City Council on Tuesday.

The initiative — a nonpartisan committee of local residents, mill owners (Broomfield and Sidell are both members), government officials, nonprofit organizations, artists, and area business people — is working to stimulate economic development and growth in Lawrence's Gateway District. The group will propose the creation of the Reviviendo Gateway Overlay district that would essentially remove some of the existing zoning barriers without changing the underlying regulations. This will allow property owners within the designated overlay district more latitude on how they develop their property.

can be used to achieve the community's vision for itself," said Maggie Super, associate director of Groundwork Lawrence and member of the Reviviendo steering committee. "It's an important first step, but it's not an end in itself. It's really a step to get us to where we want to go."

Super said another key element to the initiative is affordable housing, which would help keep artists as well as others in the community. "We don't want artists to just be the pioneers, we want them to stay," said Super. "It's too often true that artists become the least able to afford the neighborhoods they helped create."

With or without the zoning changes, artists are finding their way to the old mills of Lawrence. "The artists are coming whether people want them to or not; they're already here," said Silke. "Artists aren't going to wait around to be invited. The space is here, so they'll come."

Bill Ewing, "Zoning called tool to lure artists," *Boston Globe*, March, 2, 2003.

Appendix C: MIT Studies & Reports: Lawrence, Massachusetts

TITLE	COURSE	YEAR
The 1984 riots : Lawrence, Massachusetts	Thesis	1985
A spatial analysis of socioeconomic and demographic change in the Lower Merrimack Valley and Lawrence, MA, 1980-1990	Thesis	1992
Urban and regional restructuring and barrio formation in Massachusetts: the cases of Lowell, Lawrence, and Holyoke	Thesis	1994
Building an enclave : the experience of micro-lending in Lawrence, Massachusetts	Thesis	1995
Lawrence: Laying the Groundwork for Economic Revitalization	Economic Development Planning, 11.438	1998
Report of Technical Assistance Services in the City of Lawrence with Recommendations for Filling Coordination and Service Provision Gaps	Economic Development Planning, 11.438	1998
Brick by Brick: Building Specific Strategies fro Redevelopment in Lawrence	Financing Economic Development, 11.437	1998
Taking Off! Recommendations fro Lawrence Municipal Airport Technology Park	Economic Development Planning, 11.438	1999
Funding the Future: Expanding the Financial Services and Products Available to Hispanic Small Business Owners in Lawrence	Financing Economic Development, 11.437	1999
Lawrence Working Capital: Funding the Future: Micro-enterprise Lending in Lawrence, Massachusetts Credit Needs Assessment	Financing Economic Development, 11.437	1999
City and Island: Dominicans in Lawrence transnational community formation in a globalizing world	Thesis	1999
Less-skilled workers & the high-technology economy : a regional jobs strategy for Lawrence, MA	Thesis	1999
Starting and Growing a Business in Lawrence	Economic Development Planning, 11.438	2000
From needs to action : community organizing at Heritage Common, Lawrence, Massachusetts	Thesis	2000
Cleaning the Laundry: A report on the cleanup and redevelopment of a former laundry facility in Lawrence, MA	Brownfields Policy & Practice, 11.601	2001
Spicket River Greenway Project, Lawrence, MA : teaching & learning design with the community	Thesis	2001
Creating a Community Asset Mapping System: Lawrence, MA	Advanced GIS Project, 11.524	2002
Detour in Lawrence: Broadway Corridor Construction & Small Business Assistance	Financing Economic Development, 11.437	2002
Building partnerships: public schools as a catalysts for community development	Thesis	2002
Literacy, Language & Workforce Development in Lawrence, MA	Urban Labor Markets, 11.427	2002
Implementing a Neighborhood Information System: Lawrence, MA	Advanced GIS Project, 11.524	2003
Reworking the City of Workers: A New Housing Paradigm for the Immigrant City	Thesis	2003

Appendix D: Lawrence Project Meeting Minutes

Lawrence Project Meeting, January, 29, 2003

Attendees

Lawrence CommunityWorks (LCW)

Jessica Andors, Director of Resource Development

Alma Couverthie, Director of Organizing

Antonio Gonzalez, Neighborhood Planner

Liz Gutierrez, Director of Planning

Kristen Harol, Deputy Director

Tamar Kotelchuck, Director of Operations

Bill Traynor, Executive Director

Groundwork Lawrence

Alex Pina, Organizer/LCW Board Member

Maggie Super, Associate Director

MIT

Michelle Caulfield, *Graduate Student*

Zhan Guo, *Graduate Student*

Lorlene Hoyt, *Assistant Professor*

Lang Keyes, *Professor*

Avencia, Inc.

Robert Cheetham, *President*

MIT Goals & objectives

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MIT's Department of Urban Studies & Planning is interested in a six year endeavor to build a comprehensive knowledge infrastructure or neighborhood information system to provide value-added planning for LCW and the Lawrence community. The idea is to engage students, faculty and the Lawrence community in the creation of this system through project-specific workshops over the next six years. Robert Cheetham, who helped design Philadelphia's Neighborhood Information System (http://cml.upenn.edu/nis/), has been retained by MIT to assist in creating a platform with Web application and a user-friendly interface.

Similar to last year, this spring, students participating in *11.524 Advanced GIS Workshop* (a seven-week course beginning April 1st) will work in Lawrence. The class will investigate current Neighborhood Information Systems around the country, tackle a real issue in Lawrence (tentatively the Reviviendo zoning overlay proposal), develop an online application for analysis, and craft an implementation plan to inform the MIT/LCW collaboration.

Beginning next year, Lorlene will be teaching a full semester "Lawrence Workshop" each spring (for the next five years) as part of this collaborative effort to build a neighborhood information system in Lawrence. These workshops will be designed to fulfill a new MIT workshop requirement of all planning students. As outlined by Lorlene and Lang, MIT courses fulfilling this new requirement must meet the following criteria:

- Develop a proposal/product

- Work with constituents on urban issues in a community
- Incorporate crosscutting issues
- Encourage exploration and innovation
- Offer opportunity to put theory into practice
- Include reflection and investigation of issues such as race, class and gender

LCW goals & objectives

LCW is interested in using data and information to break down myths and deepen community understanding of history, place and future visions of Lawrence. On the whole, the city lacks a knowledge or data infrastructure and the vacuum of power and leadership fosters myth and paranoia. The idea of democratizing data and creating transparency is critical to LCW's continual efforts to "plan in the absence of power".

LCW would like the system to enhance the way it organizes and uses information. In addition to building in-house capacity for data analysis and mapping, LCW would like to build communitywide capacity for these activities. There was a lot of discussion and critical thinking about both the utility and capacity issues of such a system:

- Who specifically will use the tool and for what purpose?
- How far should we take the capacity-building element – what is the right mix of in-house and community expertise?
- What are the short- and long-term goals for the project and how do we phase the project over time to meet these goals?

It is critical that the system directly engage the ongoing activities of LCW. This includes involving youth, building the capacity of staff to use information, creating tools to better understand opportunities and challenges in Lawrence, and empowering residents. The system should offer multiple levels of service and involvement – both internally (organizational management) and externally (outreach, planning, asset building). Young professionals can be involved in data collection activities, in-house staff can learn mapping from workshop involvement or trainings, LCW and residents will benefit from customized tools for analyzing issues, and MIT students will learn to dissemination information to a multiple audiences. Some of the specific project ideas for the Lawrence workshops include:

- Reviviendo Gateway Project – lots of data needs around this endeavor – zoning is the most immediate
- Dynamic maps that analyze demographic and infrastructure changes in Lawrence over from 1970 to the present (especially housing units and population)
- Access to parks (adults and children)
- Tax burden by neighborhood
- Issues around predatory lending, access to financing/mortgages (local versus non-local lenders), mortgage foreclosures
- Purchasing power in Lawrence (look into ICIC)

- LCW membership and growth
- Quality of life issues such as crime
- Transportation – access, travel time, vehicle ownership, taxi use

During the meeting we decided that the Reviviendo overlay zoning proposal would be a nice, concrete project for the seven-week workshop this spring. However, we still need to have much more discussion over the next few months about structuring the way the workshops will feed into the creation of the neighborhood information system over the next five years.

Relationship with the city

The role of the city in this endeavor is tricky. Bill characterized the relationship with the city as along a spectrum – from opposition to neutrality to willingness to real change. There are still a number of unresolved questions about at what point and how to best engage the city (or specific departments in the city). Assess to data is critical, but even more important is obtaining permission to use city data online. *Michelle will be discussing this issue with Kristen this week.*

Next Steps

The two teams will meet regularly over the next few months to iron out critical issues about the system itself and the project-specific workshops that feed into the creation of the system (and we need a name for the "*system*"!). As we discussed, it is critical that each workshop engages LCW staff and the ongoing projects of the organization, and that the overall system be integrated into the organization itself. Meetings will alternate between Lawrence and Cambridge, with the next meeting set for **Tuesday March 4 at 6pm at Lawrence CommunityWorks.**

Urgent Priorities

The most important priority is to gear up for the *11.524 Advanced GIS Workshop,* which will begin in April and focus on the specific issue of the proposed zoning overlay district. This is an exciting and *important* project, in that it serves as a testing ground for how we want to develop future semester-long workshops to best advance the long-term vision and goals.

In order for this course to be rewarding, informative, and useful, significant upfront effort is required by both MIT and LCW. It is also critical to put in place the direct involvement of specific LCW staff. Lorlene and I discussed some initial ideas about how to best prepare, and we took the liberty to involve LCW staff in the tasks we thought most appropriate. If there are other staff configurations that make more sense from LCW's perspective, please let me know.

Lorlene, Zhan, Michelle

Pull together existing and new geographic and tabular data files so that students have as much data ready as possible when the class starts. Depending on variables that LCW deems important in the overlay zoning district analysis, additional data may need to be secured (or created from field work).

Lorlene, Michelle, Kristen

Meet with necessary parties in the city to discuss the MIT/LCW collaboration and the specific project to create a tool for analyzing the overlay zoning proposal this spring. It is critical to get the cities approval to utilize city data, especially since the product will be a Web application. We understand that this is a tricky issue, so it is important to strategize the best way to approach the city soon.

Maggie & Liz

Develop a conceptual framework for communicating the impacts of the new plan – what types of data and information does LCW want to use in analyzing the issue. It is critical to nail down these ideas so we can secure as much data as possible before the class starts. It might be best for a core group of us to brainstorm these issues prior to putting something in writing; I will follow-up with Maggie and Liz to set up a meeting to discuss this if necessary.

Antonio & Alex

How can and should the young professionals be involved in the spring workshop? Should there be a special young MIT planners group? Based on Maggie and Liz's task above, there may be some field data to collect using handheld computers, cameras, video or other means. It is important to think through these issues now so we can incorporate young professionals into the course early on.

Long-Term Priorities

Various aspects of the long-term priorities listed below will be addressed through the regular team meetings, the workshop this spring, and in Michelle's thesis.

Project Funding

We need to better clarify available funding for the next six years (consultant time, research assistants, other expenses such as a server, data, equipment). What can MIT and LCW offer to support the project? What are external funding sources and what is the best way to pursue these opportunities?

Utility

We need to begin to concretely flesh out utility aspects of the Lawrence NIS system. In both the near- and long-term, how will LCW be utilizing the system? How will others use the system? What kinds of questions do we want the system to answer? How do we ensure our efforts build upon existing LCW projects and expand the work there are doing?

Capacity

What are the staffing needs in the short- and long-term? What are some realistic capacity-building goals (for both LCW staff and the general community)? We need to develop some realistic target levels of use and expertise for a range of users.

System Design

Based on the utility and capacity goals, it will be critical to investigate system designs that will best meet these goals. How can the system be accessible yet sophisticated? What kinds of multimedia and visual planning elements will we incorporate? What are the feedback loops and who is ultimately responsible for maintenance? How can the young professionals, LCW staff and community members be integral elements of the system?

NEXT MEETING TUESDAY, MARCH 4th @ 6pm IN LAWRENCE

Lawrence Project Meeting, March 4, 2003

ATTENDEES

Lawrence CommunityWorks (LCW)

Alma Couverthie, Director of Organizing
Antonio Gonzalez, Neighborhood Planner
Liz Gutierrez, Director of Planning
Kristen Harol, Deputy Director
Bill Traynor, Executive Director

City of Lawrence

Tom Galligani, Director of Planning
Tim Belcher, GIS Specialist

Groundwork Lawrence

Maggie Super, Associate Director

MIT

Michelle Caulfield, Graduate Student
Lorlene Hoyt, Assistant Professor
Lang Keyes, Professor
Sarah Williams, GIS Librarian

••

THE ZONING OVERLAY TOOL

After an interesting and expansive discussion about the goals and uses of the proposed zoning tool, we identified two separate, but related needs: the wholesale approach and the retail approach. These two approaches are essentially separate phases of a single system, which will integrate both quantitative and qualitative (photos, illustrations, video, audio) information into a Web-based system that includes mapping and other functions.

Wholesale Approach – complementing the zoning proposal process

The wholesale approach will help community members visualize and understand the benefits of the overlay proposal in a generalized, but information way. It is important that the tool be useful to the community, irrespective of the political outcome. The goal of the wholesale approach is to use parcel-based analysis to answer critical questions about the local and citywide benefits from the overlay proposal. Information will be presented in a meaningful, yet aggregate manner (i.e. block level, categorical groupings, etc.) to avoid a political feeding frenzy. The specific stories to be highlighted include:

Fiscal impact. The tool will illustrate the potential tax revenue benefits to the city as a whole from the proposed overlay district. It will also be important to unpack myths about certain urban housing structures encumbering the city more than others (as illustrated by the findings that row houses in the North Common neighborhood are providing some of the highest tax benefits to the city in North Lawrence). In addition, the tool will analyze potential shifts in the tax burden away from residents to commercial businesses.

Density. The primary strategy here is to counter potential density fears with illustrations and photographs depicting the high-quality urban residential housing (Summer Street and others) that will be developed under the proposal. Disposable income and economic development is another important element of the density issue. It will be useful to illustrate, under the proposed zoning overlay, the potential increase in market power that could spur economic development (i.e. residential development is not a net drag on the city). Another important factor to consider with density is that parking regulations will serve as a form of density control.

Design and Site Plan Review. Incorporating text and visual presentations of proposed design standards will help stakeholders see that the proposal will not spur the creation of big ugly boxes in the Reviviendo District. Users will be able to click on generic categories of land use to see specific information regulations, including site plan and design review, and visual representations of possible projects. The goal is to clearly show that while the new zoning ordinance will permit more development, it will foster good development.

Strategies to achieve these outcomes will include a combination of the following:

- Build the system at the parcel level, but aggregate financial and other impact data by use category or by block
- Paint a clear picture of what can and cannot be done under the new zoning in a generic way for every class of land use
- Enable a range of stakeholders – abutters, the planning commission, the council, developers and residents – to ask and answer the broad question of "what does this mean to me?"
- Provide generic scenarios about current and future use potential for land use types (e.g. click on a vacant lot and see a picture of well-designed structure and regulations)
- Illustrate a build-out scenario under current zoning with some combination of high and low build-out scenarios under the overlay proposal (with parking restrictions)
- Promote the Reviviendo story – video, audio, text, photographs, highlights – how the proposal came into being

Retail Approach – post-zoning proposal process

The retail approach represents the longer-term use and will be utilized once the overlay has been approved by City Council. This approach will help individual property owners make a clear and informed decision about what opting in means to them with respect to their particular property. This tool will be promoted during the political process of the zoning proposal as a resource available to all who will decide to opt in or not. It was suggested that we involve some stakeholders in the testing of the system prior to the full-retail release.

Based on the discussion, the retail version will essentially be the wholesale system with the deeper interactive feature of parcel-based information. This system will be built by the class as part of the wholesale process. The primary strategies discussed about the retail use included:

- Parcel-based information system, where a user can click on a parcel for detailed property information and specific data about opportunities and benefits offered by the zoning proposal

- The team will promote various public locations (the City, libraries, small business center) with Internet access to increase citizen access to the system

DATA

Immediate needs for the spring project
- Parcels are ready – Tim is working on correcting small variances between parcels & orthophotos
- Assessors and treasurers data
- Parking – needs to be factored in as a development constraint
- Zoning by parcel
- Tax rate/Use Table
- Tax title & vacant properties

Long-term data needs (short list)
- Building footprints – summer project
- Parking lots

Appendix E: Identified NIS Sites (US)

City	State	Program	NNIP	Partners	Contact	Intermediary	Website
Atlanta	GA	Georgia Tech Data & Policy Analysis Group	x	The Atlanta Project (TAP)	David Sawicki	University	http://murmur.arch.gatech.edu/~dapa
Baltimore	MD	Baltimore Neighborhood Indicators Alliance	x		Odette T Ramos	Non-profit	http://www.bnia.org
Boston	MA	The Boston Foundation Boston Community Building Network	x	Boston Foundation, MAPC, Sustainable Boston, Boston DND	Charlotte Kahn	Foundation	http://www.tbf.org
Camden	NJ	CAMConnect	x	Rowen University Urban & Public Policy Institute	Dickie Lynn Gronseth	Non-profit	http://www.camconnect.org
Chattanooga	TN	Southeast Tennessee Information Service (SETNIS)	x	Community Research Council, Leadership Council, Community Foundation of Greater Chattanooga, University of Tennesses at Chattanooga (UTC)	Teletha McJunkin	Non-profit	http://www.setnis.org
Chicago	IL	Chicago NEWS				Non-profit	http://www.newschicago.org/
Cleveland	OH	Cleveland Area Network for Data Organizing (CAN DO)	x	Center on Urban Poverty & Social Change Case Western Reserve University	Claudia Coulton	University	http://povertycenter.cwru.edu
Denver	CO	The Piton Foundation	x		Terri Bailey	Foundation	http://www.piton.org
Des Moines	IA	Human Services Planning Alliance	x	Child & Family Policy Center	Tom Shanahan	Non-profit	http://www.humanservicesplanningalliance.org
Indianapolis	IN	United Way Community Service Council	x	The Polis Center	David Weinschrott	Non-profit	http://www.savi.org
Kansas City	KS	CityScope		Kansas City LISC, University of Missouri-KC		University	http://cei.umkc.edu/cityscope/
Los Angeles	CA	Neighborhood Knowledge Los Angeles	x	UCLA Advanced Policy Institute	Neal Richman	University	http://nkla.sppsr.ucla.edu/
Louisville	KY	Community Resource Network Data Center	x	Metro United Way, City of Louisville, Jefferson County Government, Jefferson County Public Schools, Seven Counties Services Inc., Kentuckiana Region Planning & Development Agency	Howard Mason	Non-profit	http://www.crnky.org
Milwaukee	WI	The Nonprofit Center of Milwaukee Neighborhood Data Center	x		Michael Barndt	Non-profit	http://my.execpc.com/~npcm/
Milwaukee	WI	MAP Milwaukee				Public	http://www.gis.ci.mil.wi.us/Map_Milwaukee/map_milwaukee.htm
Minneapolis	MN	The Minneapolis Neighborhood Information Systems		Neighborhood Planning for Community Revitalization (University of Minnesota Center for Urban & Regional Affairs)	Kris Nelson	University	http://www.npcr.org/MNIS.html
New Orleans	LA	Greater New Orleans Community Data Center	x	Tulane University, United Way of Greater New Orleans	Charlotte Cunliffe	Non-profit	http://www.gnocdc.org
New York	NY	NYPIRG Community Mapping Assistance Project (CMAP)				Non-profit	http://www.cmap.nypirg.org/
New York	NY	New York City Open Accessible Space Information System Cooperative (OASIS)				Non-profit	http://www.oasisnyc.net/
Oakland	CA	Urban Strategies Council	x		Junious Williams	Non-profit	http://www.urbanstrategies.org
Philadelphia	PE	The Reinvestment Fund	x	Philadelphia Indicators Project, City of Philadelphia	Ira Goldstein, Craig Totaro	Non-profit	http://www.trfund.com
Philadelphia	PE	Philadelphia Neighborhood Information System				University	http://cml.upenn.edu/nis/
Providence	RI	The Providence Plan	x	City of Providence, State of Rhode Island, Brown University Taubman Center	Pat McGuigan	Non-profit	http://provplan.org
Richmond	VA	Richmond Neighborhood Indicators Project		LISC		Non-profit	http://www.liscnet.org/richmond/cdc/accessing_g is.php4
Sacramento	CA	Community Services Planning Council	x		Katrina Middleton	Non-profit	http://www.communitycouncil.org
St. Paul	MN	St. Paul Community GIS Consortium				University	http://www.npcr.org/StPaulgisconsortium.html
Washington	DC	DC Agenda	x		Mark Rubin	Non-profit	http://www.dcagenda.org

Appendix F: NIS Web Evaluation Survey Instrument & Evaluators

INSTRUCTIONS

The goal of this lab is to familiarize you with different types of Neighborhood Information Systems currently in use and to help you assess aspects of these sites which may prove useful for the Lawrence project. *Before filling out this survey, please explore every feature of the website listed below in order to gain a general understanding of the project history and goals, as well as the data capabilities of the site.* Once you feel comfortable with the site's overall organization and content, please evaluate the site according to the following:

< NIS project name, URL, example local address >

1.   Use/Quality of data dictionary or glossary?
(data definitions and origins, potential data issues)

1	2	3	4	5
poor		*ok*		*excellent*

2.   Ability to retrieve parcel-level data?
(data or statistics in table or chart format)

1	2	3	4	5
poor		*ok*		*excellent*

3.   Ability to map parcel-level data?
(e.g. housing or land-use information)

1	2	3	4	5
poor		*ok*		*excellent*

4.   Ability to retrieve census data?
(data or statistics in table or chart format)

1	2	3	4	5
poor		*ok*		*excellent*

5.   Ability to map census data?
(e.g. income, education, race, ethnicity)
1   2   3   4   5
poor   *ok*   *excellent*

6.   Use/Quality of legends and data labels?
1   2   3   4   5
poor   *ok*   *excellent*

7.   Describe your ability to control how data are queried?
(e.g. population density v. raw population numbers; percentage of vacant lots v. number of vacant lots)
1   2   3   4   5
poor   *ok*   *excellent*

8.   Describe your ability to control how data are presented?
(e.g. multiple layers of data on a map; zoom, colors or symbols, classification)
1   2   3   4   5
poor   *ok*   *excellent*

9.   Describe the site's use of local knowledge or non-traditional data?
(people's stories, thoughts, ideas, opinions)
1   2   3   4   5
poor   *ok*   *excellent*

10.   Describe the site's overall aesthetics – the look and feel of the site?
1   2   3   4   5
poor   *ok*   *excellent*

11.   Describe the site's organization – how straightforward is the basic layout?
1   2   3   4   5
poor   *ok*   *excellent*

12.   Describe the site's ability to communicate project history, mission, and goals?
1   2   3   4   5
poor   *ok*   *excellent*

What is most useful about this site?

What is least useful about this site?

Rank the following:
On a scale of 1 to 4, how well do you think the site serves the following users?
1 meaning "best served" and 4 meaning "least served"

_____ **Researcher/Professional**

_____ **Government Employee**

_____ **Nonprofit/Community Development Organization**

_____ **Community Resident**

Web-test Evaluators

Kim Alleyne, MCP'05, MIT

Claudia Canepa, MCP'05, MIT

Michael La Fon, Architect

Jing Su, MCP'05 & S.MArchS'05, MIT

Maggie Super, Associate Director, Groundwork Lawrence

Sarah Williams, GIS Specialist, MIT Libraries & MCP'05, MIT

Jiawen Yang, PhD Candidate, MIT

Appendix G: NIS Web Evaluation Data

B	Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Evaluator 5	Evaluator 6	Evaluator 7	Median	Mean
N data dictionary	4	4	4	4	5	4	5	4.00	4.29
I retrieve parcel	3	1	1	1	5	2	1	1.00	2.00
A map parcel	3	1	1	1	5	2	1	1.00	2.00
retrieve census	3	4	3	2	5	4	1	3.00	3.14
map census	5	4	4	4	5	4	4	4.00	4.29
legends/labels	5	4	4	3	4	5	3	4.00	4.00
control query	4	4	4	4	5	4	4	4.00	4.14
control presentation	4	4	4	3	4	4	4	4.00	3.86
local knowledge	1	2	2	1	5	4	5	2.00	2.86
aesthetics	4	4	3	3	5	5	2	4.00	3.71
organization	3	4	3	4	5	4	5	4.00	4.00
communicate history	3	4	5	3	5	5	5	5.00	4.29
AVERAGE	**3.50**	**3.33**	**3.17**	**2.75**	**4.83**	**3.92**	**3.33**	**3.33**	**3.55**
most useful	flexible indicators at community level	Pop up labels (names of schools, community centers). Query allows many cuts of the data. Profiles by CSA.	robust homepage, community focus, pretty in-depth query tools	Good with overall characteristics of the city. Good with comparing census data to city assets	Neighborhood indicators and vital signs - provides context and why importation. Training and access points are excellent	Versatile, all education and GIS levels can use the site	Suggestions of uses, overlay of census and other data, residents opinions and community projects		
least useful	can't tell	Query function is not easy to understand. Slow to load maps. Took some time to understand.	Layout confusing, no hierarchy of information, too much scrolling-scanning vs. hyperlinks, crashed a lot	Ability to look at neighborhood information was week - did not capture local resources	no parcel data, all info is aggregate	Site is difficult for non-GIS users, "vital signs" is too dense and only in PDF format (HTML summary would be helpful)	no parcel data, no address locator		
researcher	2	1	2	2	2	3	3	2.00	2.14
government emp	3	1	4	4	2	2	2	2.00	2.57
nonprofit	2	2	1	1	1	2	1	1.00	1.43
community member	2	3	3	3	1	1	4	3.00	2.43

N		Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Evaluator 5	Evaluator 6	Evaluator 7	Median	Mean
K	data dictionary	4	1	3	3	3	3	4	3.00	3.00
L	retrieve parcel	4	3	5	2	1	5	1	3.00	3.00
A	map parcel	3	3	1	2	3	5	1	3.00	2.57
	retrieve census	2	3	4	1	1	4	1	2.00	2.29
	map census	3	3	1	3	4	4	4	3.00	3.14
	legends/labels	3	3	2	4	4	2	3	3.00	3.00
	control query	2	3	2	1	1	2	2	2.00	1.86
	control presentation	2	3	1	3	4	1	3	3.00	2.43
	local knowledge	4	4	4	4	5	4	5	4.00	4.29
	aesthetics	4	4	4	5	5	3	3	4.00	4.00
	organization	5	3	4	4	5	1	4	4.00	3.71
	communicate history	4	4	5	4	4	3	4	4.00	4.00
	AVERAGE	**3.33**	**3.08**	**3.00**	**3.00**	**3.33**	**3.08**	**2.92**	**3.08**	**3.11**
	most useful	property level information	property information, what's new section, quality of life focus	address locator, familiar navigation tools, good layout, successful implementation of declared goals	useful for code violations	How to guides and asset mapping	Detailed parcel data, format of maps is similar to yahoo so accessible to non-GIS and CAD users	good information, community project, Spanish, property search		
	least useful	census	census data, query help wasn't helpful, limited non-property data	Geared toward property issues, goal of site is narrow, efficient but not enough variety of data	limited ability beyond code and tax violations; Census data are limited. could be useful to see the data with property information	limited data of both census and parcel level	Maps are not nice enough for presentations	no parcel data, can't get tables, charts or raw data		
	researcher	3	2	3	4	4	2	4	3.00	3.14
	government emp	2	1	2	3	3	1	3	2.00	2.14
	nonprofit	1	1	1	2	2	1	2	1.00	1.43
	community member	2	1	4	1	2	3	1	2.00	2.00

O	Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Evaluator 5	Evaluator 6	Evaluator 7	Median	Mean
data dictionary	1	1	1	1	1	1	1	1.00	1.00
retrieve parcel	1	1	1	1	1	1	1	1.00	1.00
map parcel	1	1	1	1	2	1	1	1.00	1.14
retrieve census	3	3	4	4	1	4	5	4.00	3.43
map census	1	2	1	1	1	1	3	1.00	1.43
legends/labels	4	1	2	3	3	4	4	3.00	3.00
control query	1	1	1	1	1	1	1	1.00	1.00
control presentation	1	1	2	2	3	1	3	2.00	1.86
local knowledge	1	1	1	1	1	1	1	1.00	1.00
aesthetics	2	2	3	3	2	4	4	3.00	2.86
organization	3	4	3	3	3	4	4	3.00	3.43
communicate history	3	2	2	1	4	4	1	2.00	2.43
AVERAGE	**1.83**	**1.67**	**1.83**	**1.83**	**1.92**	**2.25**	**2.42**	**1.83**	**1.96**
most useful	hard to tell	good tutorial	Easy to navigate map & get census data	Can download census data to excel	ability to map community facilities	Tutorial is good, great tool for introducing people to GIS	layout straightforward although layers are not classified		
least useful	hard to tell	Hard to use, only preset maps, no querying	Difficult to operate, little data available, active layer system confusing, nascent mapping and navigation system	Tutorial	no census data on site	the three geographically targeted maps are confusing - no context or reason	census maps are only static, unable to query, no address locators, target user unclear		
researcher	4	2	4	2	4	3	4	4.00	3.29
government emp	4	1	2	4	3	1	3	3.00	2.57
nonprofit	3	3	3	1	3	1	1	3.00	2.14
community member	3	3	1	3	3	2	2	3.00	2.43

NIS Web Evaluation Data

The left margin contains vertically-stacked letters spelling "Philadelphia" (P h i l a d e l p h i a) and "NPIS" (N P I S).

P		Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Evaluator 5	Evaluator 6	Evaluator 7	Median	Mean
h	data dictionary	5	4	5	5	5	5	5	5.00	4.86
i	retrieve parcel	1	1	1	1	1	1	1	1.00	1.00
l	map parcel	1	1	1	1	1	1	1	1.00	1.00
a	retrieve census	5	4	5	3	5	5	5	5.00	4.57
d	map census	5	4	4	5	5	5	5	5.00	4.71
e	legends/labels	4	3	3	4	5	5	4	4.00	4.00
l	control query	5	4	4	5	5	5	5	5.00	4.71
p	control presentation	5	4	2	3	5	4	4	4.00	3.86
h	local knowledge	3	3	5	1	4	1	1	3.00	2.57
i	aesthetics	4	3	4	4	4	4	5	4.00	4.00
a	organization	5	5	5	4	4	4	3	4.00	4.29
	communicate history	3	2	3	3	1	1	1	2.00	2.00
N	**AVERAGE**	**3.83**	**3.17**	**3.50**	**3.25**	**3.75**	**3.42**	**3.33**	**3.42**	**3.46**
P	most useful	query matrix	Good instructions, easy to use. Neighborhood profiles. Query was easier than Baltimore. Cool mural database.	Left-hand menu, good help & definitions, good navigation. Lend itself to working with large amounts of data, flexible analysis	Ability to map census data by neighborhood	Can map detailed information with lots of variables, MuralBase is great	Good tool for simple as well as advanced analysis	Detailed data, mapping in different formats, charts & tables, can do complicated queries, good speed		
I	least useful	the mural base	Couldn't toggle easily between tables and maps when using more than one data element. No context/history for project.	Parcel information is separate from neighborhood information, can't really layer data	Chart function is confusing; potential for users to compare data that should not be compared (e.g. develop map percentages or rates that make no sense)	Seems very high tech and not accessible to average user - layout is a bit intimidating	too focused on abandonment and property data; for site to be neighborhood system, should have more comprehensive data sets related to education, assets, crime etc...	Very professional, somewhat formidable, hard to find desired items (a lot of information)		
S	researcher	1	1	4	2	1	1	1	1.00	1.57
	government emp	1	1	3	4	1	2	2	2.00	2.00
	nonprofit	1	2	1	1	2	2	3	2.00	1.71
	community member	2	2	2	3	4	3	4	3.00	2.86

		Evaluator 1	Evaluator 2	Evaluator 3	Evaluator 4	Evaluator 5	Evaluator 6	Evaluator 7	Median	Mean
P	data dictionary	2	2	4	4	1	NA	3	2.50	2.67
r	retrieve parcel	1	1	3	4	4	NA	5	3.50	3.00
o	map parcel	3	1	4	5	2	NA	5	3.50	3.33
v	retrieve census	1	2	3	5	4	NA	1	2.50	2.67
i	map census	4	2	2	4	2	NA	1	2.00	2.50
d	legends/labels	4	4	3	2	2	NA	3	3.00	3.00
e	control query	1	2	3	1	2	NA	3	2.00	2.00
n	control presentation	2	3	3	2	3	NA	3	3.00	2.67
c	local knowledge	1	1	2	4	2	NA	1	1.50	1.83
e	aesthetics	3	3	3	4	4	NA	2	3.00	3.17
P	organization	4	4	3	4	3	NA	3	3.50	3.50
l	communicate history	2	4	3	5	5	NA	2	3.50	3.50
a	**AVERAGE**	**2.33**	**2.42**	**3.00**	**3.67**	**2.83**	**NA**	**2.67**	**2.75**	**2.81**
n	most useful	GIS interface	Neighborhood data, maps and census to query. Lots of info, static census maps, good tutorial	Good combination of information, organized, newbie-oriented	Ability to create maps and download prepared data analysis in table and map format; rich data set	Neighborhood profits well-organized and easy to understand, lots of useful data already mapped and tabulated	NA	parcel level information (e.g. land by parcels), data and maps can be displayed simultaneously		
	least useful	hard to tell	Couldn't figure out query, got frustrated, hard to navigate around site once in a dataset	Exposure of information on map interface. Main page is very citizen oriented, mapper adopts to a CADD paradigm	Lacking in some specific parcel data; design if the site does not let the user fully appreciate the rich information (confusing)	interactive maps have limited data, query feature hard to use	NA	no legend, separate mappers for neighborhood & census data, icons not intuitive, poor column headings make queries difficult, load time for maps		
	researcher	4	2	1	3	3	NA	1	2.50	2.33
	government emp	3	2	4	4	2	NA	2	2.50	2.83
	nonprofit	3	2	3	1	2	NA	3	2.50	2.33
	community member	4	2	2	2	2	NA	4	2.00	2.67

Philadelphia NIS

Ranking vs. Feature (data dictionary, retrieve parcel, map parcel, retrieve census, map census, legends/labels, control query, control presentation, local knowledge, aesthetics, organization, communicate history) — Mean, Median

NKLA

Ranking vs. Feature (data dictionary, retrieve parcel, map parcel, retrieve census, map census, legends/labels, control query, control presentation, local knowledge, aesthetics, organization, communicate history) — Mean, Median

BNIA

Ranking vs. Feature (data dictionary, retrieve parcel, map parcel, retrieve census, map census, legends/labels, control query, control presentation, local knowledge, aesthetics, organization, communicate history) — Mean, Median

Oaktown Datahouse

Ranking vs Feature

Features: data dictionary, retrieve parcel, map parcel, retrieve census, map census, legends/labels, control query, control presentation, local knowledge, aesthetics, organization, communicate history

■ Mean ◆ Median

Providence Plan

Ranking vs Feature

Features: data dictionary, retrieve parcel, map parcel, retrieve census, map census, legends/labels, control query, control presentation, local knowledge, aesthetics, organization, communicate history

■ Mean ◆ Median

NIS Web Evaluation Data